DICOM Conformance Statement

Application Annex:

MR Applications on Philips IntelliSpace Portal V10.0

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1. Introduction

This DICOM Conformance Statement annex is applicable to the MR Applications on Philips IntelliSpace Portal V10.0 hosting platform, later referred to as MR Applications. In general the MR Applications are used for viewing and analyzing MR Images.

The following analysis packages are offered by MR Applications (licensing might be applicable):

- MR Subtraction
- MR Echo Accumulation
- MR Diffusion
- MR T1 Perfusion
- MR Neuro Perfusion
- MR Permeability
- MR Cartilage Assessment
- MR MobiView
- MR Spectroscopy
- MR Cardiac Analysis
- MR Diffusion with Fiber Track
- MR fMRI
- MR Neuro Quant Viewer
- MR Lobi
- MR ADA (Advanced Diffusion Analysis)
- MR Liver Health
- DynaCAD

Note: - For the IODs created out of Dyna CAD, please refer to Version 4.0 of Dyna CAD DCS.

1.1. Revision History

The revision history below provides dates and differences among individual document versions.

Table 1: Revision History

Document Version	Date of Issue	Status	Description
00	28-March-2018	Authorized	Final version

1.2. Terminology

DICOM	Digital Imaging and Communications in Medicine
IOD	Information Object Definition
UID	Unique Identifier
VR	Value Representation

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2. Data Specifications

2.1. Supported IOD's

This section specifies each IOD accepted and / or created by MR Applications.

ACCEPTED The applicable IOD is accepted for storage in the repository of the hosting platform and supported for import in MR Applications for viewing and analysis.

CREATED The MR Applications supports generation of derived data by using the applicable IOD and is able to store this data in the repository of the hosting platform.

Table 2: Supported IOD's

IOD		Support	
Name	**UID**	**ACCEPTED**	**CREATED**
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	Yes	Yes
Enhanced MR Image Storage SOP Class*	1.2.840.10008.5.1.4.1.1.4.1	Yes	No
MR Spectroscopy Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.2	Yes	Yes
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	Yes	Yes
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Yes	Yes
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	Yes	Yes
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	Yes	Yes

Note:

- *Only MR Neuro Perfusion, MR T1 Perfusion, MR Diffusion, MR Permeability, MR fMRI, MR ADA (Advanced Diffusion Analysis) and MR Cardiac Analysis applications are compliant with data from other vendors for import and display (multi-vendor compliant).*

1) *The MR Spectroscopy application will only support the Enhanced Spectroscopy MR IOD (1.2.840.10008.5.1.4.1.1.4.2).*
2) *Siemens Mosaic type fMRI and diffusion data will be supported for viewing and processing. DICOM export of mosaic data is prohibited.*
3) ** Enhanced MR Images (1.2.840.10008.5.1.4.1.1.4.1) will be converted to Classic MR Image (1.2.840.10008.5.1.4.1.1.4) upon arrival in Portal for internal diagnostic/viewing purposes. While exporting the same studies to DICOM Nodes/CD/DVD/USB, only the original Enhanced MR data as it was arrived into Portal will be exported along with the Portal generated Secondary Captures, Derived Type images, Presentation States and Book Marks.*

2.1.1. Acceptance Criteria

This section specifies the acceptance criteria applied by MR Applications to which a dataset should adhere before it can be imported into the application.
All system models objects are accepted.

Table 3: Accepted transfer syntaxes per IOD

IOD		Transfer Syntax	
Name	**UID**	**Name**	**UID**
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	CT-private-ELE Explicit VR Little Endian Implicit VR Little Endian JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.3.46.670589.33.1.4.1 1.2.840.10008.1.2.1 1.2.840.10008.1.2 1.2.840.10008.1.2.4.70

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Enhanced MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.1	Explicit VR Little Endian Implicit VR Little Endian	1.2.840.10008.1.2.1 1.2.840.10008.1.2
MR Spectroscopy Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.2	Explicit VR Little Endian Implicit VR Little Endian	1.2.840.10008.1.2.1 1.2.840.10008.1.2
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	CT-private-ELE Explicit VR Little Endian Implicit VR Little Endian JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.3.46.670589.33.1.4.1 1.2.840.10008.1.2.1 1.2.840.10008.1.2 1.2.840.10008.1.2.4.70
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	Explicit VR Little Endian Implicit VR Little Endian	1.2.840.10008.1.2.1 1.2.840.10008.1.2
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	Explicit VR Little Endian Implicit VR Little Endian	1.2.840.10008.1.2.1 1.2.840.10008.1.2

Table 4: Accepted attribute values

Attribute Name	Attribute Number	Values / Comments
Not applicable	Not applicable	Not applicable.

2.1.2. Contents of Created IOD's

This section specifies in detail the attribute contents of created data objects. Attributes are grouped together by its corresponding module as specified by DICOM standard. Philips private attributes are excluded for specification.

Abbreviations used in the Module table for the column "Presence of Value" are:

ALWAYS	The attribute is always present with a value
EMPTY	The attribute is always present without any value (attribute sent zero length)
VNAP	The attribute is always present and its Value is Not Always Present (attribute sent zero length if no value is present)
ANAP	The attribute is present under specified condition – if present then it will always have a value

The abbreviations used in the Module table for the column "Source" are:

AUTO	The attribute value is generated automatically
CONFIG	The attribute value source is a configurable parameter
COPY	The attribute value source is another SOP instance
FIXED	The attribute value is hard-coded in the application
IMPLICIT	The attribute value source is a user-implicit setting
MPPS	The attribute value is the same as that use for Modality Performed Procedure Step
MWL	The attribute value source is a Modality Worklist
USER	The attribute value source is explicit user input

2.1.2.1. MR Image Storage SOP Class

Table 5: IOD of Created MR Image Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Study	Patient Study Module	CONDITIONAL – IF PRESENT IN THE SOURCE DATA
Series	General Series Module	ALWAYS
Frame of Reference	Frame of Reference Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Image	General Image Module	ALWAYS

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Image	Image Plane Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Image	MR Image Module	ALWAYS
Image	Overlay Plane Module	CONDITIONAL – IF PRESENT IN THE SOURCE DATA
Image	VOI LUT Module	CONDITIONAL – IF PRESENT IN THE SOURCE DATA
Image	SOP Common Module	ALWAYS
	Extended DICOM and Private attributes	CONDITIONAL – IF PRESENT IN THE SOURCE DATA

Table 6: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	COPY	-
Patient ID	0010,0020	LO		VNAP	COPY	-
Patient's Birth Date	0010,0030	DA		VNAP	COPY	-
Patient's Sex	0010,0040	CS		VNAP	COPY	-
Other Patient IDs	0010,1000	LO		ANAP	COPY	-
Ethnic Group	0010,2160	SH		ANAP	COPY	-
Patient Comments	0010,4000	LT		ANAP	COPY	-

Table 7: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Study Date	0008,0020	DA		VNAP	COPY	-
Study Time	0008,0030	TM		VNAP	COPY	-
Accession Number	0008,0050	SH		VNAP	COPY	-
Referring Physician's Name	0008,0090	PN		VNAP	COPY	-
Study Description	0008,1030	LO		ANAP	COPY	-
Procedure Code Sequence	0008,1032	SQ		ANAP	COPY	-
>Code Value	0008,0100	SH		ALWAYS	COPY	-
>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	-
>Coding Scheme Version	0008,0103	SH		ANAP	COPY	-
>Code Meaning	0008,0104	LO		ANAP	COPY	-
Physician(s) of Record	0008,1048	PN		ANAP	COPY	-
Name of Physician(s) Reading Study	0008,1060	PN		ANAP	COPY	-
Referenced Study Sequence	0008,1110	SQ		ANAP	COPY	-
>Referenced SOP Class UID	0008,1150	UI		ALWAYS	COPY	-
>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	COPY	-
Study Instance UID	0020,000D	UI		ALWAYS	COPY	-
Study ID	0020,0010	SH		VNAP	COPY	-

Table 8: Patient Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Admitting Diagnoses Description	0008,1080	LO		ANAP	COPY	-
Patient's Age	0010,1010	AS		ANAP	COPY	-
Patient's Size	0010,1020	DS		ANAP	COPY	-
Patient's Weight	0010,1030	DS		ANAP	COPY	-
Occupation	0010,2180	SH		ANAP	COPY	-
Additional Patient History	0010,21B0	LT		ANAP	COPY	-

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Table 9: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Series Date	0008,0021	DA		ANAP	AUTO	-
Series Time	0008,0031	TM		ANAP	AUTO	-
Modality	0008,0060	CS		ALWAYS	COPY	-
Series Description	0008,103E	LO		ANAP	AUTO, USER	-
Performing Physician's Name	0008,1050	PN		ANAP	COPY	-
Operators' Name	0008,1070	PN		ANAP	COPY	-
Referenced Performed Procedure Step Sequence	0008,1111	SQ		ANAP	COPY	-
>Referenced SOP Class UID	0008,1150	UI		ANAP	COPY	-
>Referenced SOP Instance UID	0008,1155	UI		ANAP	COPY	-
Body Part Examined	0018,0015	CS		ANAP	COPY	-
Protocol Name	0018,1030	LO		ANAP	COPY	-
Patient Position	0018,5100	CS		ANAP	COPY	-
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	-
Series Number	0020,0011	IS		VNAP	AUTO	-
Laterality	0020,0060	CS		ANAP	COPY	-
Request Attributes Sequence	0040,0275	SQ		ANAP	COPY	-
>Scheduled Procedure Step Description	0040,0007	LO		ANAP	COPY	-
>Scheduled Protocol Code Sequence	0040,0008	SQ		ANAP	COPY	-
>Scheduled Procedure Step ID	0040,0009	SH		ANAP	COPY	-
>Requested Procedure ID	0040,1001	SH		ANAP	COPY	-
Performed Procedure Step Start Date	0040,0244	DA		ANAP	COPY	-
Performed Procedure Step Start Time	0040,0245	TM		ANAP	COPY	-
Performed Procedure Step ID	0040,0253	SH		ANAP	COPY	-
Performed Procedure Step Description	0040,0254	LO		ANAP	COPY	-
Performed Protocol Code Sequence	0040,0260	SQ		ANAP	COPY	-
>Code Value	0008,0100	SH		ANAP	COPY	-
>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	-
>Coding Scheme Version	0008,0103	SH		ANAP	COPY	-
>Code Meaning	0008,0104	LO		ANAP	COPY	-
Comments on the Performed Procedure Step	0040,0280	ST		ANAP	COPY	-

Table 10: Frame of Reference Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Frame of Reference UID	0020,0052	UI		ALWAYS	COPY	-
Position Reference Indicator	0020,1040	LO		VNAP	FIXED	-

Table 11: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO		VNAP	FIXED	Philips

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Institution Name	0008,0080	LO		ANAP	CONFIG	
Station Name	0008,1010	SH		ANAP	CONFIG	
Institutional Department Name	0008,1040	LO		ANAP	CONFIG	-
Manufacturer's Model Name	0008,1090	LO		ANAP	FIXED	IntelliSpace Portal
Device Serial Number	0018,1000	LO		ANAP	CONFIG	
Software Version(s)	0018,1020	LO		ANAP	FIXED	10.x
Pixel Padding Value	0028,0120	US		ANAP	COPY	

Table 12: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS		ANAP	COPY	-
Acquisition Date	0008,0022	DA		ANAP	COPY	-
Content Date	0008,0023	DA		ANAP	COPY	-
Acquisition Datetime	0008,002A	DT		ANAP	COPY	-
Acquisition Time	0008,0032	TM		ANAP	COPY	-
Content Time	0008,0033	TM		ANAP	COPY	-
Source Image Sequence	0008,2112	SQ		ANAP	AUTO	-
>Referenced SOP Class UID	0008,1150	UI		ALWAYS	IMPLICIT	-
>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	IMPLICIT	-
>Spatial Locations Preserved	0028,135A	CS		ANAP	COPY	-
>Purpose of Reference Code Sequence	0040,A170	SQ		ANAP	COPY	-
>>Code Value	0008,0100	SH		ANAP	COPY	-
>>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	-
>>Code Meaning	0008,0104	LO		ANAP	COPY	-
Derivation Code Sequence	0008,9215	SQ		ANAP	COPY	-
>Code Value	0008,0100	SH		ANAP	COPY	-
>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	-
>Code Meaning	0008,0104	LO		ANAP	COPY	-
Acquisition Number	0020,0012	IS		ANAP	COPY	-
Instance Number	0020,0013	IS		VNAP	AUTO	-
Patient Orientation	0020,0020	CS		ANAP	COPY	-
Image Comments	0020,4000	LT		ANAP	COPY	-
Burned In Annotation	0028,0301	CS		ANAP	COPY	-
Lossy Image Compression	0028,2110	CS		ANAP	FIXED	Applied value: 00
Presentation LUT Shape	2050,0020	CS		ANAP	FIXED	Applied value: IDENTITY

Table 13: Image Plane Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Slice Thickness	0018,0050	DS		VNAP	COPY	-
Image Position (Patient)	0020,0032	DS		ALWAYS	AUTO	-
Image Orientation (Patient)	0020,0037	DS		ALWAYS	AUTO	-
Slice Location	0020,1041	DS		ANAP	AUTO	Value is distance between the image plane and the reference point (0, 0, and 0). Value can be negative depending on the position of the plane to the reference point.
Pixel Spacing	0028,0030	DS		ALWAYS	AUTO	-

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Table 14: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Samples per Pixel	0028,0002	US		ALWAYS	COPY	
Photometric Interpretation	0028,0004	CS		ALWAYS	COPY	
Planar Configuration	0028,0006	US		ANAP	AUTO	-
Rows	0028,0010	US		ALWAYS	IMPLICIT	Applied values: min: 64 - max: 2048
Columns	0028,0011	US		ALWAYS	IMPLICIT	Applied values: min: 64 - max: 2048
Pixel Aspect Ratio	0028,0034	IS		ANAP	FIXED	Applied value: (1\1)
Bits Stored	0028,0101	US		ALWAYS	IMPLICIT	-
High Bit	0028,0102	US		ALWAYS	IMPLICIT	-
Pixel Representation	0028,0103	US		ALWAYS	IMPLICIT	Applied value: 0
Red Palette Color Lookup Table Descriptor	0028,1101	US/SS		ANAP	COPY	
Green Palette Color Lookup Table Descriptor	0028,1102	US/SS		ANAP	COPY	
Blue Palette Color Lookup Table Descriptor	0028,1103	US/SS		ANAP	COPY	
Red Palette Color Lookup Table Data	0028,1201	OW		ANAP	COPY	
Green Palette Color Lookup Table Data	0028,1202	OW		ANAP	COPY	
Blue Palette Color Lookup Table Data	0028,1203	OW		ANAP	COPY	
Pixel Data	7FE0,0010	OW/OB		ANAP	IMPLICIT	-

Table 15: MR Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS		ALWAYS	AUTO	Applied values: ({ORIGINAL, DERIVED}, {PRIMARY, SECONDARY}, {T2_STAR, R2, R2_STAR,T2, W, F,M, IP, OP, KTRANS, KEP, VE, VP, AUC, RELENH, MAXENH, MAXRELENH, T0,TTP , WASHIN, WASHOUT, BREVENH, AREACURV, RELCBF ,RELCBV,MTT, TTP, T0,DELAY, FIBER, ADC, EADC, M,FA,FAD, METABOLITE MAP, FMRI, D, D_STAR, PF, K, GOODNESS OF FIT}, {T2_STAR, R2, R2_STAR,T2, W, F,M, IP, OP, KTRANS, KEP, VE, VP, AUC, RELENH, MAXENH, MAXRELENH, T0,TTP , WASHIN, WASHOUT, BREVENH, AREACURV, RELCBF ,RELCBV,MTT, TTP, T0,DELAY, FIBER, ADC, EADC, M,FA,FAD, METABOLITE MAP, FMRI, D, D_STAR, PF, K, GOODNESS OF FIT} {UNSPECIFIED})
Scanning Sequence	0018,0020	CS		ALWAYS	COPY	
Sequence Variant	0018,0021	CS		ALWAYS	COPY	
Scan Options	0018,0022	CS		VNAP	COPY	

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MR Acquisition Type	0018,0023	CS		VNAP	COPY	
Repetition Time	0018,0080	DS		ANAP	AUTO	
Echo Time	0018,0081	DS		VNAP	AUTO	
Number of Averages	0018,0083	DS		ANAP	COPY	
Imaging Frequency	0018,0084	DS		ANAP	COPY	
Imaged Nucleus	0018,0085	SH		ANAP	COPY	
Echo Number	0018,0086	IS		ANAP	COPY	
Magnetic Field Strength	0018,0087	DS		ANAP	COPY	
Spacing Between Slices	0018,0088	DS		ANAP	COPY	
Number of Phase Encoding Steps	0018,0089	IS		ANAP	COPY	
Echo Train Length	0018,0091	IS		VNAP	COPY	
Percent Sampling	0018,0093	DS		ANAP	COPY	
Percent Phase Field of View	0018,0094	DS		ANAP	COPY	
Low R-R Value	0018,1081	IS		ANAP	COPY	
High R-R Value	0018,1082	IS		ANAP	COPY	
Intervals Acquired	0018,1083	IS		ANAP	COPY	
Intervals Rejected	0018,1084	IS		ANAP	COPY	
Heart Rate	0018,1088	IS		ANAP	COPY	
Reconstruction Diameter	0018,1100	DS		ANAP	COPY	
Receive Coil Name	0018,1250	SH		ANAP	COPY	
Acquisition Matrix	0018,1310	US		ANAP	COPY	
In-plane Phase Encoding Direction	0018,1312	CS		ANAP	COPY	
Temporal Position Identifier	0020,0100	IS		ANAP	COPY	
Number of Temporal Positions	0020,0105	IS		ANAP	COPY	
Samples per Pixel	0028,0002	US		ALWAYS	COPY	Always 1
Photometric Interpretation	0028,0004	CS	MONOCHROME 2	ALWAYS	COPY	
Bits Allocated	0028,0100	US		ALWAYS	COPY	

Table 16: Overlay Plane Module

*When exporting "Images with Annotations" to a DICOM node that does not support the GSPS SOP Class, the ISP embeds the annotations in the form of an Overlay.

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Overlay Rows	6000,0010	US		ANAP	COPY	-
Overlay Columns	6000,0011	US		ANAP	COPY	-
Overlay Description	6000,0022	LO		ANAP	COPY	-
Overlay Type	6000,0040	CS		ANAP	COPY	-
Overlay Subtype	6000,0045	LO		ANAP	COPY	-
Overlay Origin	6000,0050	SS		ANAP	COPY	-
Overlay Bits Allocated	6000,0100	US		ANAP	COPY	-
Overlay Bit Position	6000,0102	US		ANAP	COPY	-
ROI Area	6000,1301	IS		ANAP	COPY	-
ROI Mean	6000,1302	DS		ANAP	COPY	-
ROI Standard Deviation	6000,1303	DS		ANAP	COPY	-
Overlay Label	6000,1500	LO		ANAP	COPY	-
Overlay Data	6000,3000	OW/OB		ANAP	COPY	-

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Table 17: VOI LUT Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Window Center	0028,1050	DS		ANAP	AUTO	-
Window Width	0028,1051	DS		ANAP	AUTO	-

Table 18: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS		ANAP	AUTO, COPY	-
Instance Creation Date	0008,0012	DA		ANAP	AUTO	-
Instance Creation Time	0008,0013	TM		ANAP	AUTO	-
Instance Creator UID	0008,0014	UI		ANAP	AUTO	-
SOP Class UID	0008,0016	UI		ALWAYS	FIXED	-
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	-
Instance Number	0020,0013	IS		ANAP	AUTO	-

Table 19: Extended DICOM and private attributes for MR Image Storage SOP Class Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Derivation Image Sequence	0008,9124	SQ		ANAP	AUTO	-
>Source Image Sequence	0008,2112	SQ		ANAP	AUTO	-
>>Referenced SOP Class UID	0008,1150	UI		ANAP	AUTO	-
>>Referenced SOP Instance UID	0008,1155	UI		ANAP	AUTO	-
>Derivation Code Sequence	0008,9215	SQ		ANAP	AUTO	-
>>Code Value	0008,0100	SH		ANAP	AUTO	From CID 7203
>>Coding Scheme Designator	0008,0102	SH		ANAP	AUTO	From CID 7203
>>Coding Scheme Version	0008,0103	SH		ANAP	AUTO	From CID 7203
>>Code Meaning	0008,0104	LO		ANAP	AUTO	From CID 7203
Medical Alerts	0010,2000	LO		ANAP	COPY	-
Allergies	0010,2110	LO		ANAP	COPY	-
Pregnancy Status	0010,21C0	US		ANAP	COPY	-
Acquisition Duration	0018,9073	FD		ANAP	COPY	-
Diffusion b-value	0018,9087	FD		ANAP	AUTO	-
Diffusion Gradient Orientation	0018,9089	FD		ANAP	AUTO	-
Rescale Intercept	0028,1052	DS		ANAP	AUTO	When a value is present, then this value shall be used in the scaling calculation for the correct Window setting.
Rescale Slope	0028,1053	DS		ANAP	AUTO	When a value is present , then this value shall be used in the scaling calculation for the correct Window setting.
Rescale Type	0028,1054	LO		ANAP	AUTO	Applied value(s): cm/sec, milliradials, milliseconds(ms), mm^2/sec, liter/min, normalized, seconds, US, mm, 10^-3 mm^2/s, 10^-3, 10^-3/min, Mm*s, mm^2,s, s^-1.Values apply in case of quantitative images like QFLOW or Functional maps.
Requesting Physician	0032,1032	PN		ANAP	COPY	-

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Requesting Service	0032,1033	LO		ANAP	COPY	-
Requested Procedure Description	0032,1060	LO		ANAP	COPY	-
Requested Contrast Agent	0032,1070	LO		ANAP	COPY	-
Study Comments (retired)	0032,4000	LT		ANAP	COPY	Maximally 32 characters copied from (0040, 0280) Comments on the Performed Procedure Steps.
Special Needs	0038,0050	LO		ANAP	COPY	-
Patient State	0038,0500	LO		ANAP	COPY	-
Scheduled Performing Physician's Name	0040,0006	PN		ANAP	COPY	-
Performed Station AE Title	0040,0241	AE		ANAP	CONFIG	-
Performed Station Name	0040,0242	SH		ANAP	CONFIG	-
Performed Location	0040,0243	SH		ANAP	CONFIG	-
Performed Procedure Step End Date	0040,0250	DA		ANAP	COPY	-
Performed Procedure Step End Time	0040,0251	TM		ANAP	COPY	-
Performed Procedure Step Status	0040,0252	CS		ANAP	COPY	-
Film Consumption Sequence	0040,0321	SQ		ANAP	AUTO	-
Requested Procedure ID	0040,1001	SH		ANAP	COPY	-
Reason for the Requested Procedure	0040,1002	LO		ANAP	COPY	-
Requested Procedure Priority	0040,1003	SH		ANAP	COPY	-
Patient Transport Arrangements	0040,1004	LO		ANAP	COPY	-
Requested Procedure Location	0040,1005	LO		ANAP	COPY	-
Requested Procedure Comments	0040,1400	LT		ANAP	COPY	-
Reason for the Imaging Service Request (retired)	0040,2001	LO		ANAP	COPY	-
Issue Date of Imaging Service Request	0040,2004	DA		ANAP	COPY	-
Issue Time of Imaging Service Request	0040,2005	TM		ANAP	COPY	-
Order Enterer's Location	0040,2009	SH		ANAP	COPY	-
Order Callback Phone Number	0040,2010	SH		ANAP	COPY	-
Imaging Service Request Comments	0040,2400	LT		ANAP	COPY	-
Real World Value Mapping Sequence	0040,9096	SQ		ANAP	COPY	-
>Real World Value Intercept	0040,9224	FD		ANAP	COPY	-
>Real World Value Slope	0040,9225	FD		ANAP	COPY	-
Private Creator Group 2001	2001,0010	LO		ANAP	FIXED	Applied value: Philips Imaging DD 001
Chemical Shift	2001,1001	FL		ANAP	COPY	-
Chemical Shift Number MR	2001,1002	IS		ANAP	COPY	-
Diffusion B-Factor	2001,1003	FL		ANAP	COPY	-
Diffusion Direction	2001,1004	CS		ANAP	COPY	-
Image Enhanced	2001,1006	CS		ANAP	COPY	-
Image Type ED ES	2001,1007	CS		ANAP	COPY	-
Phase Number	2001,1008	IS		ANAP	COPY	-
Image Prepulse Delay	2001,1009	FL		ANAP	COPY	-
Slice Number MR	2001,100A	IS		ANAP	IMPLICIT	-
Slice Orientation	2001,100B	CS		ANAP	IMPLICIT	-

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Arrhythmia Rejection	2001,100C	CS		ANAP	COPY	-
Cardiac Cycled	2001,100E	CS		ANAP	COPY	-
Cardiac Gate Width	2001,100F	SS		ANAP	COPY	-
Cardiac Sync	2001,1010	CS		ANAP	COPY	-
Diffusion Echo Time	2001,1011	FL		ANAP	IMPLICIT	-
Dynamic Series	2001,1012	CS		ANAP	COPY	-
EPI Factor	2001,1013	SL		ANAP	COPY	-
Number of Echoes	2001,1014	SL		ANAP	COPY	-
Number of Locations	2001,1015	SS		ANAP	COPY	-
Number of PC Directions	2001,1016	SS		ANAP	COPY	-
Number of Phases MR	2001,1017	SL		ANAP	COPY	-
Number of Slices MR	2001,1018	SL		ANAP	IMPLICIT, USER	-
Partial Matrix Scanned	2001,1019	CS		ANAP	COPY	-
PC Velocity	2001,101A	FL		ANAP	COPY	-
Prepulse Delay	2001,101B	FL		ANAP	COPY	-
Prepulse Type	2001,101C	CS		ANAP	COPY	-
Reconstruction Number MR	2001,101D	IS		ANAP	IMPLICIT	-
Respiration Sync	2001,101F	CS		ANAP	COPY	-
Series Type	2001,106E	LO		ANAP	COPY	-
Stack Sequence	2001,105F	SQ		ANAP	COPY	-
Scanning Technique	2001,1020	LO		ANAP	COPY	-
SPIR	2001,1021	CS		ANAP	COPY	-
Water Fat Shift	2001,1022	FL		ANAP	COPY	-
Flip Angle Philips	2001,1023	DS		ANAP	COPY	-
Series is Interactive	2001,1024	CS		ANAP	COPY	-
Echo Time Display	2001,1025	SH		ANAP	COPY	-
Contrast Transfer Taste	2001,1058	UL		ANAP	COPY	-
Number of Stacks	2001,1060	SL		ANAP	IMPLICIT	-
Series Transmitted	2001,1061	CS		ANAP	AUTO	-
Acquisition_No	2001,107B	IS		ANAP	COPY	-
No_Dynamic_Scans	2001,1081	IS		ANAP	COPY	-
IsrawImage	2001,10A1	CS		ANAP	COPY	-
Prospective Motion Correction	2001,10F1	FL		ANAP	COPY	Only applicable if retrospective correction is done on the data.
Retrospective Motion Correction	2001,10F2	FL		ANAP	COPY	Only applicable if retrospective correction is done on the data.
Private Creator Group 2005	2005,0010	LO		ANAP	FIXED	Applied value: Philips MR Imaging DD 001
Number of Chemical Shift	2005,1020	SL		ANAP	COPY	Only applicable for spectro 2dsi.
Syncra Scan Type	2005,10A1	CS		ANAP	COPY	If syncra scan. Applied values: SENSE, SYN_CLASSIC, SYN_COCA
Diffusion Direction RL	2005,10B0	FL		ANAP	COPY	Only applicable if Diffusion Direction is Oblique.
Diffusion Direction AP	2005,10B1	FL		ANAP	COPY	Only applicable if Diffusion Direction is Oblique.
Diffusion Direction FH	2005,10B2	FL		ANAP	COPY	Only applicable if Diffusion Direction is Oblique.

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2.1.2.2. MR Spectroscopy Storage SOP Class

Table 20: IOD of Created MR Spectroscopy Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Study	Patient Study Module	CONDITIONAL – IF PRESENT IN THE SOURCE DATA
Series	General Series Module	ALWAYS
Series	MR Series Module	ALWAYS
Frame of Reference	Frame of Reference Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Equipment	Enhanced General Equipment Module	ALWAYS
MR Spectroscopy	Acquisition Context Module	ALWAYS
MR Spectroscopy	Multi-frame Functional Groups Module (MR Spectroscopy)	ALWAYS
MR Spectroscopy	Multi-frame Dimension Module	ALWAYS
MR Spectroscopy	Cardiac Synchronization Module	CONDITIONAL – IF PRESENT IN THE SOURCE DATA
MR Spectroscopy	Respiratory Synchronization Module	CONDITIONAL – IF PRESENT IN THE SOURCE DATA
MR Spectroscopy	Bulk Motion Synchronization Module	CONDITIONAL – IF PRESENT IN THE SOURCE DATA
MR Spectroscopy	MR Spectroscopy Module	ALWAYS
MR Spectroscopy	MR Spectroscopy Pulse Sequence Module	CONDITIONAL – IF PRESENT IN THE SOURCE DATA
MR Spectroscopy	MR Spectroscopy Data Module	ALWAYS
MR Spectroscopy	SOP Common Module	ALWAYS
	Extended Dicom and Private attributes	ALWAYS

Table 21: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	COPY	-
Patient ID	0010,0020	LO		VNAP	COPY	-
Patient's Birth Date	0010,0030	DA		VNAP	COPY	-
Patient's Sex	0010,0040	CS		VNAP	COPY	-
Other Patient IDs	0010,1000	LO		ANAP	COPY	-
Ethnic Group	0010,2160	SH		ANAP	COPY	-
Patient Comments	0010,4000	LT		ANAP	COPY	-

Table 22: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Study Date	0008,0020	DA		VNAP	COPY	-
Study Time	0008,0030	TM		VNAP	COPY	-
Accession Number	0008,0050	SH		VNAP	COPY	-
Referring Physician's Name	0008,0090	PN		VNAP	COPY	-
Study Description	0008,1030	LO		ANAP	COPY	-
Procedure Code Sequence	0008,1032	SQ		ANAP	COPY	-
>Code Value	0008,0100	SH		ALWAYS	COPY	-
>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	-
>Coding Scheme Version	0008,0103	SH		ANAP	COPY	-
>Code Meaning	0008,0104	LO		ANAP	COPY	-
Physician(s) of Record	0008,1048	PN		ANAP	COPY	-
Name of Physician(s) Reading Study	0008,1060	PN		ANAP	COPY	-
Referenced Study Sequence	0008,1110	SQ		ANAP	COPY	-

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>Referenced SOP Class UID	0008,1150	UI		ALWAYS	COPY	-
>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	COPY	-
Study Instance UID	0020,000D	UI		ALWAYS	COPY	-
Study ID	0020,0010	SH		VNAP	COPY	-

Table 23: Patient Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Admitting Diagnoses Description	0008,1080	LO		ANAP	COPY	-
Patient's Age	0010,1010	AS		ANAP	COPY	-
Patient's Size	0010,1020	DS		ANAP	COPY	-
Patient's Weight	0010,1030	DS		ANAP	COPY	-
Occupation	0010,2180	SH		ANAP	COPY	-
Additional Patient History	0010,21B0	LT		ANAP	COPY	-

Table 24: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Series Date	0008,0021	DA		ANAP	AUTO	-
Series Time	0008,0031	TM		ANAP	AUTO	-
Modality	0008,0060	CS		ANAP	AUTO	-
Series Description	0008,103E	LO		ANAP	AUTO, USER	-
Performing Physician's Name	0008,1050	PN		ANAP	COPY	-
Operators' Name	0008,1070	PN		ANAP	COPY	-
Referenced Performed Procedure Step Sequence	0008,1111	SQ		ANAP	COPY	-
>Referenced SOP Class UID	0008,1150	UI		ANAP	COPY	-
>Referenced SOP Instance UID	0008,1155	UI		ANAP	COPY	-
Body Part Examined	0018,0015	CS		ANAP	COPY	-
Protocol Name	0018,1030	LO		ANAP	AUTO	-
Patient Position	0018,5100	CS		ANAP	COPY	-
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	-
Series Number	0020,0011	IS		VNAP	AUTO	-
Laterality	0020,0060	CS		ANAP	COPY	-
Request Attributes Sequence	0040,0275	SQ		ANAP	COPY	-
>Scheduled Procedure Step Description	0040,0007	LO		ANAP	COPY	-
>Scheduled Protocol Code Sequence	0040,0008	SQ		ANAP	COPY	-
>Scheduled Procedure Step ID	0040,0009	SH		ANAP	COPY	-
>Requested Procedure ID	0040,1001	SH		ANAP	COPY	-
Performed Procedure Step Start Date	0040,0244	DA		ANAP	COPY	-
Performed Procedure Step Start Time	0040,0245	TM		ANAP	COPY	-
Performed Procedure Step ID	0040,0253	SH		ANAP	COPY	-
Performed Procedure Step Description	0040,0254	LO		ANAP	COPY	-
Performed Protocol Code Sequence	0040,0260	SQ		ANAP	COPY	-
>Code Value	0008,0100	SH		ANAP	COPY	-

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>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	-
>Coding Scheme Version	0008,0103	SH		ANAP	COPY	-
>Code Meaning	0008,0104	LO		ANAP	COPY	-
Comments on the Performed Procedure Step	0040,0280	ST		ANAP	COPY	-

Table 25: MR Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS		ALWAYS	COPY	-
Referenced Performed Procedure Step Sequence	0008,1111	SQ		ANAP	COPY	-

Table 26: Frame of Reference Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Frame of Reference UID	0020,0052	UI		ALWAYS	COPY	-
Position Reference Indicator	0020,1040	LO		VNAP	FIXED	-

Table 27: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO		VNAP	FIXED	Philips
Institution Name	0008,0080	LO		ANAP	CONFIG	
Institution Address	0008,0081	ST		ANAP	CONFIG	-
Station Name	0008,1010	SH		ANAP	CONFIG	
Institutional Department Name	0008,1040	LO		ANAP	CONFIG	-
Manufacturer's Model Name	0008,1090	LO		ANAP	FIXED	IntelliSpace Portal
Device Serial Number	0018,1000	LO		ANAP	CONFIG	
Software Version(s)	0018,1020	LO		ANAP	FIXED	10.x

Table 28: Enhanced General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO	Philips	VNAP	COPY	Philips
Manufacturer's Model Name	0008,1090	LO		ANAP	COPY	-
Device Serial Number	0018,1000	LO		ANAP	COPY	System serial number.
Software Version(s)	0018,1020	LO		ANAP	COPY	

Table 29: Acquisition Context Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Acquisition Context Sequence	0040,0555	SQ		ANAP	COPY	-

Table 30: Multi-frame Functional Groups Module (MR Spectroscopy)

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Content Date	0008,0023	DA		ALWAYS	COPY	-
Content Time	0008,0033	TM		ALWAYS	COPY	-
Instance Number	0020,0013	IS		ALWAYS	COPY	-
Number of Frames	0028,0008	IS		ALWAYS	COPY	-
Shared Functional Groups Sequence	5200,9229	SQ		VNAP	COPY	Always present in combination with the Per-frame Functional Groups Sequence (5200,9230)

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>Pixel Measures Sequence	0028,9110	SQ		ALWAYS	COPY	-
>>Slice Thickness	0018,0050	DS		ANAP	COPY	-
>>Pixel Spacing	0028,0030	DS		ANAP	COPY	-
>Plane Position Sequence	0020,9113	SQ		ALWAYS	COPY	-
>>Image Position (Patient)	0020,0032	DS		ANAP	COPY	-
>Plane Orientation Sequence	0020,9116	SQ		ALWAYS	COPY	-
>>Image Orientation (Patient)	0020,0037	DS		ANAP	COPY	-
>Referenced Image Sequence	0008,1140	SQ		ANAP	COPY	-
>>Purpose of Reference Code Sequence	0040,A170	SQ		ALWAYS	COPY	-
>>>Code Value	0008,0100	SH		ALWAYS	COPY	-
>>>Coding Scheme Designator	0008,0102	SH		ALWAYS	COPY	-
>>>Code Meaning	0008,0104	LO		ALWAYS	COPY	-
>>Referenced Frame Number	0008,1160	IS		ANAP	COPY	-
>Cardiac Synchronization Sequence	0018,9118	SQ		ANAP	COPY	-
>>Nominal Cardiac Trigger Delay Time	0020,9153	FD		ALWAYS	COPY	-
>>R - R Interval Time Nominal	0020,9251	FD		ANAP	COPY	-
>Respiratory Synchronization Sequence	0020,9253	SQ		ANAP	COPY	-
>>Respiratory Interval Time	0020,9254	FD		ALWAYS	COPY	-
>>Nominal Respiratory Trigger Delay Time	0020,9255	FD		ALWAYS	COPY	-
>MR Spectroscopy Frame Type Sequence	0018,9227	SQ		ALWAYS	COPY	-
>>Frame Type	0008,9007	CS		ALWAYS	COPY	-
>>Volumetric Properties	0008,9206	CS		ALWAYS	COPY	-
>>Volume Based Calculation Technique	0008,9207	CS		ALWAYS	COPY	-
>>Complex Image Component	0008,9208	CS		ALWAYS	COPY	-
>>Acquisition Contrast	0008,9209	CS		ALWAYS	COPY	-
>MR Timing and Related Parameters Sequence	0018,9112	SQ		ALWAYS	COPY	-
>>Repetition Time	0018,0080	DS		ANAP	COPY	-
>>Echo Train Length	0018,0091	IS		ANAP	COPY	-
>>Flip Angle	0018,1314	DS		ANAP	COPY	-
>>Operating Mode Sequence	0018,9176	SQ		ANAP	COPY	-
>>>Operating Mode Type	0018,9177	CS		ALWAYS	COPY	-
>>>Operating Mode	0018,9178	CS		ALWAYS	COPY	-
>>Gradient Output Type	0018,9180	CS		ANAP	COPY	-
>>Gradient Output	0018,9182	FD		ANAP	COPY	-
>>Specific Absorption Rate Sequence	0018,9239	SQ		ANAP	COPY	-
>>>Specific Absorption Rate Definition	0018,9179	CS		ALWAYS	COPY	-
>>>Specific Absorption Rate Value	0018,9181	FD		ALWAYS	COPY	-
>>RF Echo Train Length	0018,9240	US		ANAP	COPY	-
>>Gradient Echo Train Length	0018,9241	US		ANAP	COPY	-
>MR Spectroscopy FOV/Geometry Sequence	0018,9103	SQ		ALWAYS	COPY	-
>>Percent Sampling	0018,0093	DS		ANAP	COPY	-

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>>Percent Phase Field of View	0018,0094	DS		ANAP	COPY	-
>>Spectroscopy Acquisition Phase Rows	0018,9095	UL		ANAP	COPY	-
>>Spectroscopy Acquisition Data Columns	0018,9127	UL		ANAP	COPY	-
>>Spectroscopy Acquisition Out-of-plane Phase Steps	0018,9159	UL		ANAP	COPY	-
>>Spectroscopy Acquisition Phase Columns	0018,9234	UL		ANAP	COPY	-
>MR Echo Sequence	0018,9114	SQ		ALWAYS	COPY	-
>>Effective Echo Time	0018,9082	FD		ANAP	COPY	-
>MR Modifier Sequence	0018,9115	SQ		ALWAYS	COPY	-
>>Inversion Recovery	0018,9009	CS		ANAP	COPY	-
>>Flow Compensation	0018,9010	CS		ANAP	COPY	-
>>Spoiling	0018,9016	CS		ANAP	COPY	-
>>T2 Preparation	0018,9021	CS		ANAP	COPY	-
>>Spectrally Selected Excitation	0018,9026	CS		ANAP	COPY	-
>>Spatial Pre-saturation	0018,9027	CS		ANAP	COPY	-
>>Partial Fourier Direction	0018,9036	CS		ANAP	COPY	-
>>Parallel Reduction Factor In-plane	0018,9069	FD		ANAP	COPY	-
>>Parallel Acquisition	0018,9077	CS		ANAP	COPY	-
>>Parallel Acquisition Technique	0018,9078	CS		ANAP	COPY	-
>>Inversion Times	0018,9079	FD		ANAP	COPY	-
>>Partial Fourier	0018,9081	CS		ANAP	COPY	-
>>Parallel Reduction Factor out-of-plane	0018,9155	FD		ANAP	COPY	-
>>Parallel Reduction Factor Second In-plane	0018,9168	FD		ANAP	COPY	-
>>Flow Compensation Direction	0018,9183	CS		ANAP	COPY	-
>MR Receive Coil Sequence	0018,9042	SQ		ALWAYS	COPY	-
>>Receive Coil Name	0018,1250	SH		ANAP	COPY	-
>>Receive Coil Manufacturer Name	0018,9041	LO		EMPTY	COPY	-
>>Receive Coil Type	0018,9043	CS		ANAP	COPY	-
>>Quadrature Receive Coil	0018,9044	CS		ANAP	COPY	-
>>Multi-Coil Definition Sequence	0018,9045	SQ		ANAP	COPY	-
>>>Multi-Coil Element Name	0018,9047	SH		ALWAYS	COPY	-
>>>Multi-Coil Element Used	0018,9048	CS		ALWAYS	COPY	-
>MR Transmit Coil Sequence	0018,9049	SQ		ANAP	COPY	-
>>Transmit Coil Name	0018,1251	SH		ALWAYS	COPY	-
>>Transmit Coil Manufacturer Name	0018,9050	LO		EMPTY	COPY	-
>>Transmit Coil Type	0018,9051	CS		ANAP	COPY	-
>MR Diffusion Sequence	0018,9117	SQ		ANAP	COPY	-
>>Diffusion Directionality	0018,9075	CS		ANAP	COPY	-
>>Diffusion Gradient Direction Sequence	0018,9076	SQ		ANAP	COPY	-
>>>Diffusion Gradient Orientation	0018,9089	FD		ANAP	COPY	-
>>Diffusion b-value	0018,9087	FD		ANAP	COPY	-

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>>Diffusion Anisotropy Type	0018,9147	CS		ANAP	COPY	-
>>Diffusion b-matrix Sequence	0018,9601	SQ		ANAP	COPY	-
>MR Averages Sequence	0018,9119	SQ		ALWAYS	COPY	-
>>Number of Averages	0018,0083	DS		ANAP	COPY	-
>MR Spatial Saturation Sequence	0018,9107	SQ		ANAP	COPY	-
>>Slab Thickness	0018,9104	FD		ALWAYS	COPY	-
>>Slab Orientation	0018,9105	FD		ALWAYS	COPY	-
>>Mid Slab Position	0018,9106	FD		ALWAYS	COPY	-
>MR Velocity Encoding Sequence	0018,9197	SQ		ANAP	COPY	-
>>Velocity Encoding Direction	0018,9090	FD		ANAP	COPY	-
>>Velocity Encoding Minimum Value	0018,9091	FD		ANAP	COPY	-
>>Velocity Encoding Maximum Value	0018,9217	FD		ANAP	COPY	-
>Frame Anatomy Sequence	0020,9071	SQ		ANAP	COPY	-
>>Frame Laterality	0020,9072	CS		ALWAYS	COPY	-
>>Anatomic Region Sequence	0008,2218	SQ		ALWAYS	COPY	-
>>>Code Value	0008,0100	SH		ALWAYS	COPY	-
>>>Coding Scheme Designator	0008,0102	SH		ALWAYS	COPY	-
>>>Code Meaning	0008,0104	LO		ALWAYS	COPY	-
Per-frame Functional Groups Sequence	5200,9230	SQ		ALWAYS	COPY	Always present in combination with the Shared Functional Groups Sequence (5200,9229)
>Pixel Measures Sequence	0028,9110	SQ		ALWAYS	COPY	-
>>Slice Thickness	0018,0050	DS		ANAP	COPY	-
>>Pixel Spacing	0028,0030	DS		ANAP	COPY	-
>Frame Content Sequence	0020,9111	SQ		ALWAYS	COPY	-
>>Frame Acquisition Datetime	0018,9074	DT		ANAP	COPY	-
>>Frame Reference Datetime	0018,9151	DT		ANAP	COPY	-
>>Frame Acquisition Duration	0018,9220	FD		ANAP	COPY	-
>>Stack ID	0020,9056	SH		ANAP	COPY	-
>>In-Stack Position Number	0020,9057	UL		ANAP	COPY	-
>Plane Position Sequence	0020,9113	SQ		ALWAYS	COPY	-
>>Image Position (Patient)	0020,0032	DS		ANAP	COPY	-
>Plane Orientation Sequence	0020,9116	SQ		ALWAYS	COPY	-
>>Image Orientation (Patient)	0020,0037	DS		ANAP	COPY	-
>Referenced Image Sequence	0008,1140	SQ		ANAP	COPY	-
>>Purpose of Reference Code Sequence	0040,A170	SQ		ALWAYS	COPY	-
>>>Code Value	0008,0100	SH		ALWAYS	COPY	-
>>>Coding Scheme Designator	0008,0102	SH		ALWAYS	COPY	-
>>>Code Meaning	0008,0104	LO		ALWAYS	COPY	-
>>Referenced Frame Number	0008,1160	IS		ANAP	COPY	-
>Cardiac Synchronization Sequence	0018,9118	SQ		ALWAYS	COPY	-
>>Nominal Cardiac Trigger Delay Time	0020,9153	FD		ALWAYS	COPY	-
>>R - R Interval Time Nominal	0020,9251	FD		ANAP	COPY	-
>MR Timing and Related Parameters Sequence	0018,9112	SQ		ALWAYS	COPY	-
>>Repetition Time	0018,0080	DS		ANAP	COPY	-

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>>Echo Train Length	0018,0091	IS		ANAP	COPY	-
>>Flip Angle	0018,1314	DS		ANAP	COPY	-
>>Operating Mode Sequence	0018,9176	SQ		ANAP	COPY	-
>>>Operating Mode Type	0018,9177	CS		ALWAYS	COPY	-
>>>Operating Mode	0018,9178	CS		ALWAYS	COPY	-
>>Gradient Output Type	0018,9180	CS		ANAP	COPY	-
>>Gradient Output	0018,9182	FD		ANAP	COPY	-
>>Specific Absorption Rate Sequence	0018,9239	SQ		ANAP	COPY	-
>>>Specific Absorption Rate Definition	0018,9179	CS		ALWAYS	COPY	-
>>>Specific Absorption Rate Value	0018,9181	FD		ALWAYS	COPY	-
>>RF Echo Train Length	0018,9240	US		ANAP	COPY	-
>>Gradient Echo Train Length	0018,9241	US		ANAP	COPY	-
>MR Echo Sequence	0018,9114	SQ		ALWAYS	COPY	-
>>Effective Echo Time	0018,9082	FD		ANAP	COPY	-
>Respiratory Synchronization Sequence	0020,9253	SQ		ANAP	COPY	-
>>Respiratory Interval Time	0020,9254	FD		ALWAYS	COPY	-
>>Nominal Respiratory Trigger Delay Time	0020,9255	FD		ALWAYS	COPY	-
>MR Modifier Sequence	0018,9115	SQ		ALWAYS	COPY	-
>>Inversion Recovery	0018,9009	CS		ANAP	COPY	-
>>Flow Compensation	0018,9010	CS		ANAP	COPY	-
>>Spoiling	0018,9016	CS		ANAP	COPY	-
>>T2 Preparation	0018,9021	CS		ANAP	COPY	-
>>Spectrally Selected Excitation	0018,9026	CS		ANAP	COPY	-
>>Spatial Pre-saturation	0018,9027	CS		ANAP	COPY	-
>>Partial Fourier Direction	0018,9036	CS		ANAP	COPY	-
>>Parallel Reduction Factor In-plane	0018,9069	FD		ANAP	COPY	-
>>Parallel Acquisition	0018,9077	CS		ANAP	COPY	-
>>Parallel Acquisition Technique	0018,9078	CS		ANAP	COPY	-
>>Inversion Times	0018,9079	FD		ANAP	COPY	-
>>Partial Fourier	0018,9081	CS		ANAP	COPY	-
>>Parallel Reduction Factor out-of-plane	0018,9155	FD		ANAP	COPY	-
>>Parallel Reduction Factor Second In-plane	0018,9168	FD		ANAP	COPY	-
>>Flow Compensation Direction	0018,9183	CS		ANAP	COPY	-
>MR Receive Coil Sequence	0018,9042	SQ		ANAP	COPY	-
>>Receive Coil Name	0018,1250	SH		ALWAYS	COPY	-
>>Receive Coil Manufacturer Name	0018,9041	LO		EMPTY	COPY	-
>>Receive Coil Type	0018,9043	CS		ANAP	COPY	-
>>Quadrature Receive Coil	0018,9044	CS		ANAP	COPY	-
>>Multi-Coil Definition Sequence	0018,9045	SQ		ANAP	COPY	-
>>>Multi-Coil Element Name	0018,9047	SH		ALWAYS	COPY	-
>>>Multi-Coil Element Used	0018,9048	CS		ALWAYS	COPY	-
>MR Transmit Coil Sequence	0018,9049	SQ		ALWAYS	COPY	-

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>>Transmit Coil Name	0018,1251	SH		ALWAYS	COPY	-
>>Transmit Coil Manufacturer Name	0018,9050	LO		EMPTY	COPY	-
>>Transmit Coil Type	0018,9051	CS		ANAP	COPY	-
>MR Diffusion Sequence	0018,9117	SQ		ANAP	COPY	-
>>Diffusion Directionality	0018,9075	CS		ANAP	COPY	-
>>Diffusion Gradient Direction Sequence	0018,9076	SQ		ANAP	COPY	-
>>>Diffusion Gradient Orientation	0018,9089	FD		ANAP	COPY	-
>>Diffusion b-value	0018,9087	FD		ANAP	COPY	-
>>Diffusion Anisotropy Type	0018,9147	CS		ANAP	COPY	-
>Frame Anatomy Sequence	0020,9071	SQ		ALWAYS	COPY	-
>>Frame Laterality	0020,9072	CS		ALWAYS	COPY	-
>>Anatomic Region Sequence	0008,2218	SQ		ALWAYS	COPY	-
>>>Code Value	0008,0100	SH		ALWAYS	COPY	-
>>>Coding Scheme Designator	0008,0102	SH		ALWAYS	COPY	-
>>>Code Meaning	0008,0104	LO		ALWAYS	COPY	-
>MR Spectroscopy Frame Type Sequence	0018,9227	SQ		ALWAYS	COPY	-
>>Frame Type	0008,9007	CS		ALWAYS	COPY	-
>>Volumetric Properties	0008,9206	CS		ALWAYS	COPY	-
>>Volume Based Calculation Technique	0008,9207	CS		ALWAYS	COPY	-
>>Complex Image Component	0008,9208	CS		ALWAYS	COPY	-
>>Acquisition Contrast	0008,9209	CS		ALWAYS	COPY	-
>MR Spectroscopy FOV/Geometry Sequence	0018,9103	SQ		ALWAYS	COPY	-
>>Percent Sampling	0018,0093	DS		ANAP	COPY	-
>>Percent Phase Field of View	0018,0094	DS		ANAP	COPY	-
>>Spectroscopy Acquisition Phase Rows	0018,9095	UL		ANAP	COPY	-
>>Spectroscopy Acquisition Data Columns	0018,9127	UL		ANAP	COPY	-
>>Spectroscopy Acquisition Out-of-plane Phase Steps	0018,9159	UL		ANAP	COPY	-
>>Spectroscopy Acquisition Phase Columns	0018,9234	UL		ANAP	COPY	-
>MR Averages Sequence	0018,9119	SQ		ALWAYS	COPY	-
>>Number of Averages	0018,0083	DS		ANAP	COPY	-
>MR Spatial Saturation Sequence	0018,9107	SQ		ANAP	COPY	-
>>Slab Thickness	0018,9104	FD		ALWAYS	COPY	-
>>Slab Orientation	0018,9105	FD		ALWAYS	COPY	-
>>Mid Slab Position	0018,9106	FD		ALWAYS	COPY	-
>MR Velocity Encoding Sequence	0018,9197	SQ		ANAP	COPY	-
>>Velocity Encoding Direction	0018,9090	FD		ANAP	COPY	-
>>Velocity Encoding Minimum Value	0018,9091	FD		ANAP	COPY	-
>>Velocity Encoding Maximum Value	0018,9217	FD		ANAP	COPY	-

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Table 31: Multi-frame Dimension Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Dimension Organization Sequence	0020,9221	SQ		ALWAYS	COPY	-
>Dimension Organization UID	0020,9164	UI		ALWAYS	COPY	-
Dimension Index Sequence	0020,9222	SQ		ALWAYS	COPY	-
>Dimension Organization UID	0020,9164	UI		ANAP	COPY	-
>Dimension Index Pointer	0020,9165	AT		ALWAYS	COPY	-
>Functional Group Pointer	0020,9167	AT		ANAP	COPY	-
>Dimension Index Private Creator	0020,9213	LO		ANAP	COPY	-
>Functional Group Private Creator	0020,9238	LO		ANAP	COPY	-

Table 32: Cardiac Synchronization Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Low R-R Value	0018,1081	IS		ANAP	COPY	-
High R-R Value	0018,1082	IS		ANAP	COPY	-
Intervals Acquired	0018,1083	IS		ANAP	COPY	-
Intervals Rejected	0018,1084	IS		ANAP	COPY	-
Cardiac Synchronization Technique	0018,9037	CS		ANAP	COPY	-
Cardiac R-R Interval Specified	0018,9070	FD		ANAP	COPY	-
Cardiac Signal Source	0018,9085	CS		ANAP	COPY	-
Cardiac Beat Rejection Technique	0018,9169	CS		ANAP	COPY	-

Table 33: Respiratory Synchronization Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Respiratory Motion Compensation Technique	0018,9170	CS		ANAP	COPY	-
Respiratory Signal Source	0018,9171	CS		ANAP	COPY	-
Respiratory Trigger Delay Threshold	0020,9256	FD		ANAP	COPY	-

Table 34: Bulk Motion Synchronization Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Bulk Motion Compensation Technique	0018,9172	CS		ANAP	COPY	-

Table 35: MR Spectroscopy Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS	DERIVED, SECONDARY, SPECTROSCOPY, NONE	ALWAYS	AUTO	Applied value: DERIVED, SECONDARY, SPECTROSCOPY, NONE
Referenced Image Evidence Sequence	0008,9092	SQ		ANAP	COPY	
>Referenced Series Sequence	0008,1115	SQ		ALWAYS	COPY	

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>>Referenced SOP Sequence	0008,1199	SQ		ALWAYS	COPY	
>>>Referenced SOP Class UID	0008,1150	UI		ALWAYS	COPY	
>>>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	COPY	
>>Series Instance UID	0020,000E	UI		ALWAYS	COPY	
>Study Instance UID	0020,000D	UI		ALWAYS	COPY	
Spectral Width	0018,9052	FD		ANAP	COPY	-
Chemical Shift Reference	0018,9053	FD		ANAP	COPY	-
Volume Localization Technique	0018,9054	CS		ANAP	COPY	-
De-coupling	0018,9059	CS		ANAP	COPY	-
De-coupled Nucleus	0018,9060	CS		ANAP	COPY	-
De-coupling Frequency	0018,9061	FD		ANAP	COPY	-
De-coupling Method	0018,9062	CS		ANAP	COPY	-
De-coupling Chemical Shift Reference	0018,9063	FD		ANAP	COPY	-
Time Domain Filtering	0018,9065	CS		ANAP	COPY	-
Number of Zero fills	0018,9066	US		ANAP	COPY	-
Baseline Correction	0018,9067	CS		ANAP	COPY	-
Transmitter Frequency	0018,9098	FD		ANAP	COPY	-
Frequency Correction	0018,9101	CS		ANAP	COPY	-
Volume Localization Sequence	0018,9126	SQ		ANAP	COPY	-
>Slab Thickness	0018,9104	FD		ALWAYS	COPY	-
>Slab Orientation	0018,9105	FD		ALWAYS	COPY	-
>Mid Slab Position	0018,9106	FD		ANAP	COPY	-
First Order Phase Correction	0018,9198	CS		ANAP	COPY	-
Water Referenced Phase Correction	0018,9199	CS		ANAP	COPY	-
Acquisition Datetime	0008,002A	DT		ANAP	COPY	-
Source Image Evidence Sequence	0008,9154	SQ		ANAP	COPY	-
>Referenced Series Sequence	0008,1115	SQ		ANAP	COPY	-
>>Referenced SOP Sequence	0008,1199	SQ		ALWAYS	COPY	-
>>>Referenced SOP Class UID	0008,1150	UI		ALWAYS	COPY	-
>>>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	COPY	-
>>Series Instance UID	0020,000E	UI		ALWAYS	COPY	-
>Study Instance UID	0020,000D	UI		ALWAYS	COPY	-
Magnetic Field Strength	0018,0087	DS		ANAP	COPY	-
Content Qualification	0018,9004	CS		ALWAYS	COPY	-
k-space Filtering	0018,9064	CS		ANAP	COPY	-
Acquisition Duration	0018,9073	FD		ANAP	COPY	-
Resonant Nucleus	0018,9100	CS		ANAP	COPY	-
Applicable Safety Standard Agency	0018,9174	CS		ALWAYS	COPY	-
Acquisition Number	0020,0012	IS		ANAP	COPY	-
Image Comments	0020,4000	LT		ANAP	COPY	-
Volumetric Properties	0008,9206	CS		ALWAYS	COPY	-
Volume Based Calculation Technique	0008,9207	CS		ALWAYS	COPY	-
Complex Image Component	0008,9208	CS		ALWAYS	COPY	-
Acquisition Contrast	0008,9209	CS		ALWAYS	COPY	-

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Table 36: MR Spectroscopy Pulse Sequence Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Pulse Sequence Name	0018,9005	SH		ANAP	COPY	-
Echo Pulse Sequence	0018,9008	CS		ANAP	COPY	-
Multiple Spin Echo	0018,9011	CS		ANAP	COPY	-
Multi-planar Excitation	0018,9012	CS		ANAP	COPY	-
Steady State Pulse Sequence	0018,9017	CS		ANAP	COPY	-
Echo Planar Pulse Sequence	0018,9018	CS		ANAP	COPY	-
Spectrally Selected Suppression	0018,9025	CS		ANAP	COPY	-
Geometry of k-Space Traversal	0018,9032	CS		ANAP	COPY	-
Segmented k-Space Traversal	0018,9033	CS		ANAP	COPY	-
Rectilinear Phase Encode Reordering	0018,9034	CS		ANAP	COPY	-
Number of k-Space Trajectories	0018,9093	US		ANAP	COPY	-
MR Spectroscopy Acquisition Type	0018,9200	CS		ANAP	COPY	-

Table 37: MR Spectroscopy Data Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Rows	0028,0010	US		ALWAYS	AUTO	-
Columns	0028,0011	US		ALWAYS	AUTO	-
Data Point Rows	0028,9001	UL		ALWAYS	AUTO	-
Data Point Columns	0028,9002	UL		ALWAYS	AUTO	-
Signal Domain Columns	0028,9003	CS		ALWAYS	AUTO	FREQUENCY
Data Representation	0028,9108	CS		ALWAYS	AUTO	-
First Order Phase Correction Angle	5600,0010	OF		ANAP	AUTO	-
Spectroscopy Data	5600,0020	OF		ALWAYS	AUTO	-

Table 38: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS		ANAP	AUTO, COPY	-
Instance Creation Date	0008,0012	DA		ANAP	AUTO	-
Instance Creation Time	0008,0013	TM		ANAP	AUTO	-
Instance Creator UID	0008,0014	UI		ANAP	AUTO	-
SOP Class UID	0008,0016	UI		ALWAYS	FIXED	-
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	-
Instance Number	0020,0013	IS		ANAP	COPY	-

Table 39: Extended DICOM and private attributes for MR Spectroscopy Storage SOP Class Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Derivation Image Sequence	0008,9124	SQ		ANAP	AUTO	-
>Source Image Sequence	0008,2112	SQ		ANAP	AUTO	-
>>Referenced SOP Class UID	0008,1150	UI		ANAP	AUTO	-
>>Referenced SOP Instance UID	0008,1155	UI		ANAP	AUTO	-
>Derivation Code Sequence	0008,9215	SQ		ANAP	AUTO	-
>>Code Value	0008,0100	SH		ANAP	AUTO	From CID 7203

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>>Coding Scheme Designator	0008,0102	SH		ANAP	AUTO	From CID 7203
>>Coding Scheme Version	0008,0103	SH		ANAP	AUTO	From CID 7203
>>Code Meaning	0008,0104	LO		ANAP	AUTO	From CID 7203
Medical Alerts	0010,2000	LO		ANAP	COPY	-
Allergies	0010,2110	LO		ANAP	COPY	-
Pregnancy Status	0010,21C0	US		ANAP	COPY	-
Scanning Sequence	0018,0020	CS		ALWAYS	AUTO	-
Sequence Variant	0018,0021	CS		ALWAYS	AUTO	-
Samples per Pixel	0028,0002	US		ALWAYS	AUTO	Applied value: 1
Photometric Interpretation	0028,0004	CS	MONOCHROME2	ALWAYS	AUTO	Applied values: MONOCHROME2
Planar Configuration	0028,0006	US		ANAP	AUTO	-
Window Center	0028,1050	DS		ANAP	AUTO	-
Window Width	0028,1051	DS		ANAP	AUTO	-
Bits Allocated	0028,0100	US		ALWAYS	AUTO	-
Bits Stored	0028,0101	US		ALWAYS	AUTO	-
High Bit	0028,0102	US		ALWAYS	AUTO	-
Pixel Representation	0028,0103	US		ALWAYS	AUTO	-
Rescale Intercept	0028,1052	DS		ANAP	AUTO	-
Rescale Slope	0028,1053	DS		ANAP	AUTO	-
Rescale Type	0028,1054	LO	normalized	ANAP	AUTO	Applied value(s): normalized
Special Needs	0038,0050	LO		ANAP	COPY	-
Patient State	0038,0500	LO		ANAP	COPY	-
Scheduled Performing Physician's Name	0040,0006	PN		ANAP	COPY	-
Pixel Data	7FE0,0010	O W/ OB		ANAP	AUTO	-

2.1.2.3. Secondary Capture Image Storage SOP Class

Table 40: IOD of Created Secondary Capture Image Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Study	Patient Study Module	CONDITIONAL – IF PRESENT IN THE SOURCE DATA
Series	General Series Module	ALWAYS
Equipment	General Equipment Module	CONDITIONAL – IF PRESENT IN THE SOURCE DATA
Equipment	SC Equipment Module	ALWAYS
Image	General Image Module	ALWAYS
Image	Image Pixel Module	ALWAYS
Image	SC Image Module	ALWAYS
Image	Overlay Plane Module	CONDITIONAL – IF PRESENT IN THE SOURCE DATA
Image	Modality LUT Module	CONDITIONAL – IF PRESENT IN THE SOURCE DATA
Image	VOI LUT Module	CONDITIONAL – IF PRESENT IN THE SOURCE DATA
Image	SOP Common Module	ALWAYS
	Extended Dicom and Private attributes	ALWAYS

Table 41: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	COPY	-

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Patient ID	0010,0020	LO		VNAP	COPY	-
Patient's Birth Date	0010,0030	DA		VNAP	COPY	-
Patient's Sex	0010,0040	CS		VNAP	COPY	-
Other Patient IDs	0010,1000	LO		ANAP	COPY	-
Ethnic Group	0010,2160	SH		ANAP	COPY	-
Patient Comments	0010,4000	LT		ANAP	COPY	-

Table 42: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Study Date	0008,0020	DA		VNAP	COPY	-
Study Time	0008,0030	TM		VNAP	COPY	-
Accession Number	0008,0050	SH		VNAP	COPY	-
Referring Physician's Name	0008,0090	PN		VNAP	COPY	-
Study Description	0008,1030	LO		ANAP	COPY	-
Procedure Code Sequence	0008,1032	SQ		ANAP	COPY	-
>Code Value	0008,0100	SH		ALWAYS	COPY	-
>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	-
>Coding Scheme Version	0008,0103	SH		ANAP	COPY	-
>Code Meaning	0008,0104	LO		ANAP	COPY	-
Physician(s) of Record	0008,1048	PN		ANAP	COPY	-
Name of Physician(s) Reading Study	0008,1060	PN		ANAP	COPY	-
Referenced Study Sequence	0008,1110	SQ		ANAP	COPY	-
>Referenced SOP Class UID	0008,1150	UI		ALWAYS	COPY	-
>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	COPY	-
Study Instance UID	0020,000D	UI		ALWAYS	COPY	-
Study ID	0020,0010	SH		VNAP	COPY	-

Table 43: Patient Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Admitting Diagnoses Description	0008,1080	LO		ANAP	COPY	-
Patient's Age	0010,1010	AS		ANAP	COPY	-
Patient's Size	0010,1020	DS		ANAP	COPY	-
Patient's Weight	0010,1030	DS		ANAP	COPY	-
Occupation	0010,2180	SH		ANAP	COPY	-
Additional Patient History	0010,21B0	LT		ANAP	COPY	-

Table 44: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Series Date	0008,0021	DA		ANAP	AUTO	-
Series Time	0008,0031	TM		ANAP	AUTO	-
Modality	0008,0060	CS		ANAP	AUTO	-
Series Description	0008,103E	LO		ANAP	AUTO, USER	-
Performing Physician's Name	0008,1050	PN		ANAP	COPY	-
Operators' Name	0008,1070	PN		ANAP	AUTO	-
Referenced Performed Procedure Step Sequence	0008,1111	SQ		ANAP	COPY	-
>Referenced SOP Class UID	0008,1150	UI		ANAP	COPY	-

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>Referenced SOP Instance UID	0008,1155	UI		ANAP	COPY	-
Body Part Examined	0018,0015	CS		ANAP	COPY	-
Protocol Name	0018,1030	LO		ANAP	COPY	-
Patient Position	0018,5100	CS		ANAP	COPY	-
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	-
Series Number	0020,0011	IS		VNAP	AUTO	-
Laterality	0020,0060	CS		ANAP	COPY	-
Smallest Pixel Value in Series	0028,0108	US /SS		ANAP	AUTO	-
Largest Pixel Value in Series	0028,0109	US /SS		ANAP	AUTO	-
Request Attributes Sequence	0040,0275	SQ		ANAP	COPY	-
>Scheduled Procedure Step Description	0040,0007	LO		ANAP	COPY	-
>Scheduled Protocol Code Sequence	0040,0008	SQ		ANAP	COPY	-
>>Code Value	0008,0100	SH		ALWAYS	COPY	-
>>Coding Scheme Designator	0008,0102	SH		ALWAYS	COPY	-
>>Coding Scheme Version	0008,0103	SH		ANAP	COPY	-
>>Code Meaning	0008,0104	LO		ALWAYS	COPY	-
>Scheduled Procedure Step ID	0040,0009	SH		ANAP	COPY	-
>Requested Procedure ID	0040,1001	SH		ANAP	COPY	-
Performed Procedure Step Start Date	0040,0244	DA		ANAP	COPY	-
Performed Procedure Step Start Time	0040,0245	TM		ANAP	COPY	-
Performed Procedure Step ID	0040,0253	SH		ANAP	COPY	-
Performed Procedure Step Description	0040,0254	LO		ANAP	COPY	-
Performed Protocol Code Sequence	0040,0260	SQ		ANAP	COPY	-
>Code Value	0008,0100	SH		ANAP	COPY	-
>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	-
>Coding Scheme Version	0008,0103	SH		ANAP	COPY	-
>Code Meaning	0008,0104	LO		ANAP	COPY	-
>Context Group Local Version	0008,0107	DT		ANAP	COPY	-
>Context Group Extension Flag	0008,010B	CS		ANAP	COPY	-
>Context Group Extension Creator UID	0008,010D	UI		ANAP	COPY	-
Comments on the Performed Procedure Step	0040,0280	ST		ANAP	COPY	-
ADA Selected Algorithm	2001,8E89	LO		ANAP	AUTO	-
ADA Selected B Values	2001,8E8A	FL		ANAP	AUTO	-

Table 45: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO		VNAP	FIXED	Philips
Institution Name	0008,0080	LO		ANAP	CONFIG	
Institution Address	0008,0081	ST		ANAP	CONFIG	-
Station Name	0008,1010	SH		ANAP	CONFIG	
Institutional Department Name	0008,1040	LO		ANAP	CONFIG	-
Manufacturer's Model Name	0008,1090	LO		ANAP	FIXED	IntelliSpace Portal

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Device Serial Number	0018,1000	LO		ANAP	CONFIG	
Software Version(s)	0018,1020	LO		ANAP	FIXED	10.x

Table 46: SC Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS		ANAP	AUTO	-
Conversion Type	0008,0064	CS		ALWAYS	AUTO	-
Secondary Capture Device ID	0018,1010	LO		ANAP	AUTO	-
Secondary Capture Device Manufacturer	0018,1016	LO		ANAP	AUTO	
Secondary Capture Device Manufacturer's Model Name	0018,1018	LO	IntelliSpace Portal	ANAP	AUTO	IntelliSpace Portal
Secondary Capture Device Software Version(s)	0018,1019	LO	10.x	ANAP	AUTO	10.x

Table 47: General Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Type	0008,0008	CS	DERIVED\SECONDARY	ANAP	AUTO, COPY	Applied value: DERIVED, SECONDARY
Acquisition Date	0008,0022	DA		ANAP	COPY	-
Content Date	0008,0023	DA		ANAP	AUTO	-
Acquisition Time	0008,0032	TM		ANAP	COPY	-
Content Time	0008,0033	TM		ANAP	AUTO	-
Acquisition Number	0020,0012	IS		ANAP	COPY	-
Instance Number	0020,0013	IS		VNAP	AUTO	-
Patient Orientation	0020,0020	CS		ANAP	COPY	-
Image Comments	0020,4000	LT		ANAP	AUTO	-
Burned In Annotation	0028,0301	CS		ANAP	AUTO, COPY	-
Lossy Image Compression	0028,2110	CS		ANAP	COPY	Applied value: 00

Table 48: Image Pixel Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Samples per Pixel	0028,0002	US		ALWAYS	AUTO	Applied value: 1, 3
Photometric Interpretation	0028,0004	CS		ALWAYS	IMPLICIT	Applied values: MONOCHROME2, RGB
Planar Configuration	0028,0006	US		ANAP	AUTO	-
Rows	0028,0010	US		ALWAYS	AUTO	-
Columns	0028,0011	US		ALWAYS	AUTO	-
Pixel Aspect Ratio	0028,0034	IS		ANAP	AUTO	Applied value: (1,1)
Bits Allocated	0028,0100	US		ALWAYS	AUTO	-
Bits Stored	0028,0101	US		ALWAYS	AUTO	-
High Bit	0028,0102	US		ALWAYS	AUTO	-
Pixel Representation	0028,0103	US		ALWAYS	AUTO	-
Pixel Data	7FE0,0010	O W/ OB		ANAP	AUTO	-
Smallest Image Pixel Value	0028,0106	US		ANAP	AUTO	-
Largest Image Pixel Value	0028,0107	US		ANAP	AUTO	-

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Table 49: SC Image Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Date of Secondary Capture	0018,1012	DA		ANAP	COPY	-
Time of Secondary Capture	0018,1014	TM		ANAP	COPY	-

Table 50: Overlay Plane Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Overlay Rows	6000,0010	US		ANAP	COPY	-
Overlay Columns	6000,0011	US		ANAP	COPY	-
Overlay Description	6000,0022	LO		ANAP	COPY	-
Overlay Type	6000,0040	CS		ANAP	COPY	-
Overlay Subtype	6000,0045	LO		ANAP	COPY	-
Overlay Origin	6000,0050	SS		ANAP	COPY	-
Overlay Bits Allocated	6000,0100	US		ANAP	COPY	-
Overlay Bit Position	6000,0102	US		ANAP	COPY	-
ROI Area	6000,1301	IS		ANAP	COPY	-
ROI Mean	6000,1302	DS		ANAP	COPY	-
ROI Standard Deviation	6000,1303	DS		ANAP	COPY	-
Overlay Label	6000,1500	LO		ANAP	COPY	-
Overlay Data	6000,3000	O W/ OB		ANAP	COPY	-

Table 51: Modality LUT Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Rescale Intercept	0028,1052	DS		ANAP	COPY	-
Rescale Slope	0028,1053	DS		ANAP	COPY	-
Rescale Type	0028,1054	LO		ANAP	COPY	-
Modality LUT Sequence	0028,3000	SQ		ANAP	COPY	-
>LUT Descriptor	0028,3002	US /SS		ANAP	COPY	-
>LUT Explanation	0028,3003	LO		ANAP	COPY	-
>Modality LUT Type	0028,3004	LO		ANAP	COPY	-
>LUT Data	0028,3006	US /O W		ANAP	COPY	-

Table 52: VOI LUT Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Window Center	0028,1050	DS		ANAP	COPY	-
Window Width	0028,1051	DS		ANAP	COPY	-
Window Center & Width Explanation	0028,1055	LO		ANAP	COPY	-
VOI LUT Sequence	0028,3010	SQ		ANAP	COPY	-

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Table 53: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS		ANAP	AUTO, COPY	-
Instance Creation Date	0008,0012	DA		ANAP	AUTO	-
Instance Creation Time	0008,0013	TM		ANAP	AUTO	-
Instance Creator UID	0008,0014	UI		ANAP	AUTO	-
SOP Class UID	0008,0016	UI		ALWAYS	AUTO	-
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	-
Contributing Equipment Sequence	0018,A001	SQ		ANAP	FIXED	
>Manufacturer	0008,0070	LO		ALWAYS	COPY	
>Institution Name	0008,0080	LO		ANAP	COPY	
>Institution Address	0008,0081	ST		ANAP	COPY	
>Station Name	0008,1010	SH		ANAP	COPY	
>Institutional Department Name	0008,1040	LO		ANAP	COPY	
>Manufacturer's Model Name	0008,1090	LO		ANAP	COPY	
>Device Serial Number	0018,1000	LO		ANAP	CONFIG	
>Software Versions	0018,1020	LO		ANAP	COPY	
>Contribution DateTime	0018,A002	DT		ANAP	COPY	
>Contribution Description	0018,A003	ST		ANAP	COPY	
>Purpose of Reference Code Sequence	0040,A170	SQ		ALWAYS	FIXED	
>>Code Value	0008,0100	SH		ALWAYS	FIXED	
>>Coding Scheme Designator	0008,0102	SH		ALWAYS	FIXED	
>>Code Meaning	0008,0104	LO		ALWAYS	FIXED	
Instance Number	0020,0013	IS		ANAP	COPY	

Table 54: Extended DICOM and private attributes for Secondary Capture Image Storage SOP Class Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Medical Alerts	0010,2000	LO		ANAP	COPY	-
Allergies	0010,2110	LO		ANAP	COPY	-
Pregnancy Status	0010,21C0	US		ANAP	COPY	-
Special Needs	0038,0050	LO		ANAP	COPY	-
Patient State	0038,0500	LO		ANAP	COPY	-
Scheduled Performing Physician's Name	0040,0006	PN		ANAP	COPY	-
Performed Station AE Title	0040,0241	AE		ANAP	COPY	-
Performed Procedure Step End Time	0040,0251	TM		ANAP	COPY	-
Comments on the Performed Procedure Step	0040,0280	ST		ANAP	COPY	-
Film Consumption Sequence	0040,0321	SQ		ANAP	COPY	-

2.1.2.4. Encapsulated PDF Storage

Table 55: IOD of Created Encapsulated PDF Storage Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Study	Patient Study Module	CONDITIONAL – IF PRESENT IN THE SOURCE DATA

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Series	Encapsulated Document Series Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Equipment	SC Equipment Module	ALWAYS
Encapsulated Document	Encapsulated Document Module	ALWAYS
Encapsulated Document	SOP Common Module	ALWAYS

Table 56: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	COPY	-
Patient ID	0010,0020	LO		VNAP	COPY	-
Patient's Birth Date	0010,0030	DA		VNAP	COPY	-
Patient's Sex	0010,0040	CS		VNAP	COPY	-
Other Patient IDs	0010,1000	LO		ANAP	COPY	-
Ethnic Group	0010,2160	SH		ANAP	COPY	-
Patient Comments	0010,4000	LT		ANAP	COPY	-

Table 57: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Study Date	0008,0020	DA		VNAP	COPY	-
Study Time	0008,0030	TM		VNAP	COPY	-
Accession Number	0008,0050	SH		VNAP	COPY	-
Referring Physician's Name	0008,0090	PN		VNAP	COPY	-
Study Description	0008,1030	LO		ANAP	COPY	-
Procedure Code Sequence	0008,1032	SQ		ANAP	COPY	-
>Code Value	0008,0100	SH		ANAP	COPY	-
>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	-
>Coding Scheme Version	0008,0103	SH		ANAP	COPY	-
>Code Meaning	0008,0104	LO		ANAP	COPY	-
Physician(s) of Record	0008,1048	PN		ANAP	COPY	-
Name of Physician(s) Reading Study	0008,1060	PN		ANAP	COPY	-
Referenced Study Sequence	0008,1110	SQ		ANAP	COPY	-
>Referenced SOP Class UID	0008,1150	UI		ANAP	COPY	-
>Referenced SOP Instance UID	0008,1155	UI		ANAP	COPY	-
Study Instance UID	0020,000D	UI		ALWAYS	COPY	-
Study ID	0020,0010	SH		VNAP	COPY	-

Table 58: Patient Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Admitting Diagnoses Description	0008,1080	LO		ANAP	COPY	-
Admitting Diagnoses Code Sequence	0008,1084	SQ		ANAP	COPY	-
Patient's Age	0010,1010	AS		ANAP	COPY	-
Patient's Size	0010,1020	DS		ANAP	COPY	-
Patient's Weight	0010,1030	DS		ANAP	COPY	-
Occupation	0010,2180	SH		ANAP	COPY	-
Additional Patient History	0010,21B0	LT		ANAP	COPY	-

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Table 59: Encapsulated Document Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS		ALWAYS	AUTO	-
Series Description	0008,103E	LO	Reports	ANAP	AUTO	Reports
Referenced Performed Procedure Step Sequence	0008,1111	SQ		ANAP	COPY	-
Referenced SOP Class UID	0008,1150	UI		ANAP	COPY	-
Referenced SOP Instance UID	0008,1155	UI		ANAP	COPY	-
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	-
Series Number	0020,0011	IS		ALWAYS	AUTO	-
Performed Procedure Step Start Date	0040,0244	DA		ANAP	COPY	-
Performed Procedure Step Start Time	0040,0245	TM		ANAP	COPY	-
Performed Procedure Step ID	0040,0253	SH		ANAP	COPY	-
Performed Procedure Step Description	0040,0254	LO		ANAP	AUTO	-
Performed Protocol Code Sequence	0040,0260	SQ		ANAP	COPY	-
>Code Value	0008,0100	SH		ANAP	COPY	-
>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	-
>Code Meaning	0008,0104	LO		ANAP	AUTO	-
>Context Group Local Version	0008,0107	DT		ANAP	COPY	-
>Context Group Extension Flag	0008,010B	CS		ANAP	COPY	-
Comments on the Performed Procedure Step	0040,0280	ST		ANAP	COPY	-

Table 60: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO		VNAP	FIXED	Philips
Institution Name	0008,0080	LO		ANAP	CONFIG	
Institution Address	0008,0081	ST		ANAP	COPY	-
Station Name	0008,1010	SH		ANAP	CONFIG	
Institutional Department Name	0008,1040	LO		ANAP	CONFIG	-
Manufacturer's Model Name	0008,1090	LO		ANAP	FIXED	IntelliSpace Portal
Device Serial Number	0018,1000	LO		ANAP	CONFIG	
Software Version(s)	0018,1020	LO		ANAP	FIXED	10.x
Spatial Resolution	0018,1050	DS		ANAP	COPY	-
Date of Last Calibration	0018,1200	DA		ANAP	COPY	-
Time of Last Calibration	0018,1201	TM		ANAP	COPY	-
Pixel Padding Value	0028,0120	US /SS		ANAP	COPY	-

Table 61: SC Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS		ANAP	AUTO	-
Conversion Type	0008,0064	CS	WSD	ALWAYS	AUTO	-
Secondary Capture Device ID	0018,1010			ALWAYS	AUTO	-
Secondary Capture Device Manufacturer	0018,1016	LO		ANAP	AUTO	

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Secondary Capture Device Manufacturer's Model Name	0018,1018	LO		ANAP	AUTO	IntelliSpace Portal
Secondary Capture Device Software Version(s)	0018,1019	LO		ANAP	AUTO	10.x
Video Image Format Acquired	0018,1022	SH		ANAP	COPY	-
Digital Image Format Acquired	0018,1023	LO		ANAP	COPY	-

Table 62: Encapsulated Document Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Content Date	0008,0023	DA		VNAP	AUTO	-
Acquisition Datetime	0008,002A	DT		VNAP	AUTO	-
Content Time	0008,0033	TM		VNAP	AUTO	-
Instance Number	0020,0013	IS	1	ALWAYS	AUTO	-
Burned In Annotation	0028,0301	CS	YES	ALWAYS	AUTO	-
Concept Name Code Sequence	0040,A043	SQ		VNAP	AUTO	-
Document Title	0042,0010	ST		VNAP	AUTO	-
Encapsulated Document	0042,0011	OB		ALWAYS	AUTO	-
MIME Type of Encapsulated Document	0042,0012	LO	application/pdf	ALWAYS	AUTO	-
Source Instance Sequence	0042,0013	SQ		ANAP	AUTO	-
>Referenced SOP Class UID	0008,1150	UI		ALWAYS	AUTO	-
>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	AUTO	-

Table 63: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS		ANAP	AUTO	-
Instance Creation Date	0008,0012	DA		ANAP	AUTO	-
Instance Creation Time	0008,0013	TM		ANAP	AUTO	-
Instance Creator UID	0008,0014	UI		ANAP	AUTO	-
SOP Class UID	0008,0016	UI		ALWAYS	COPY	-
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	-
Timezone Offset From UTC	0008,0201	SH		ANAP	COPY	-
Contributing Equipment Sequence	0018,A001	SQ		ANAP	AUTO	-
>Manufacturer	0008,0070	LO		ALWAYS	COPY	
>Institution Address	0008,0081	ST		ANAP	COPY	
>Station Name	0008,1010	SH		ANAP	CONFIG	
>Institutional Department Name	0008,1040	LO		ANAP	COPY	
>Software Version(s)	0018,1020	LO		ANAP	COPY	
>Device Serial Number	0018,1000	LO		ANAP	COPY	
>Institution Name	0008,0080	LO		ANAP	COPY	
>Manufacturer's Model Name	0008,1090	LO		ANAP	COPY	
>Purpose of Reference Code Sequence	0040,A170	SQ		ALWAYS	FIXED	-
>>Code Value	0008,0100	SH	109102	ALWAYS	FIXED	109102
>>Coding Scheme Designator	0008,0102	SH	DCM	ALWAYS	FIXED	DCM
>>Code Meaning	0008,0104	LO	Processing Equipment	ALWAYS	FIXED	Processing Equipment

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2.1.2.5. Grayscale Softcopy Presentation State Storage SOP Class

Table 64: IOD of Created Grayscale Softcopy Presentation State Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Study	Patient Study Module	CONDITIONAL – IF PRESENT IN THE SOURCE DATA
Series	General Series Module	ALWAYS
Series	Presentation Series Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Presentation State	Presentation State Identification Module	ALWAYS
Presentation State	Presentation State Relationship Module	ALWAYS
Presentation State	Display Shutter Module	CONDITIONAL
Presentation State	Overlay Plane Module	CONDITIONAL
Presentation State	Overlay Activation Module	CONDITIONAL
Presentation State	Displayed Area Module	CONDITIONAL
Presentation State	Graphic Annotation Module	CONDITIONAL
Presentation State	Spatial Transformation Module	CONDITIONAL
Presentation State	Graphic Layer Module	CONDITIONAL
Presentation State	Modality LUT Module	CONDITIONAL
Presentation State	Softcopy VOI LUT Module	CONDITIONAL
Presentation State	Softcopy Presentation LUT Module	ALWAYS
Presentation State	SOP Common Module	ALWAYS
	Extended Dicom and Private attributes	

Table 65: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	COPY	-
Patient ID	0010,0020	LO		VNAP	COPY	-
Patient's Birth Date	0010,0030	DA		VNAP	COPY	-
Patient's Sex	0010,0040	CS		VNAP	COPY	-
Other Patient IDs	0010,1000	LO		ANAP	COPY	-
Ethnic Group	0010,2160	SH		ANAP	COPY	-
Patient Comments	0010,4000	LT		ANAP	COPY	-

Table 66: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Study Date	0008,0020	DA		VNAP	COPY	-
Study Time	0008,0030	TM		VNAP	COPY	-
Accession Number	0008,0050	SH		VNAP	COPY	-
Referring Physician's Name	0008,0090	PN		VNAP	COPY	-
Study Description	0008,1030	LO		ANAP	COPY	-
Procedure Code Sequence	0008,1032	SQ		ANAP	COPY	-
>Code Value	0008,0100	SH		ALWAYS	COPY	-
>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	-
>Coding Scheme Version	0008,0103	SH		ANAP	COPY	-
>Code Meaning	0008,0104	LO		ANAP	COPY	-
Physician(s) of Record	0008,1048	PN		ANAP	COPY	-
Name of Physician(s) Reading Study	0008,1060	PN		ANAP	COPY	-

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Referenced Study Sequence	0008,1110	SQ		ANAP	COPY	-
>Referenced SOP Class UID	0008,1150	UI		ALWAYS	COPY	-
>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	COPY	-
Study Instance UID	0020,000D	UI		ALWAYS	COPY	-
Study ID	0020,0010	SH		VNAP	COPY	-

Table 67: Patient Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Admitting Diagnoses Description	0008,1080	LO		ANAP	COPY	-
Patient's Age	0010,1010	AS		ANAP	COPY	-
Patient's Size	0010,1020	DS		ANAP	COPY	-
Patient's Weight	0010,1030	DS		ANAP	COPY	-
Occupation	0010,2180	SH		ANAP	COPY	-
Additional Patient History	0010,21B0	LT		ANAP	COPY	-

Table 68: General Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS		ANAP	AUTO	-
Series Date	0008,0021	DA		ANAP	AUTO	-
Series Time	0008,0031	TM		ANAP	AUTO	-
Series Description	0008,103E	LO		ANAP	AUTO, USER	-
Operators' Name	0008,1070	PN		ANAP	AUTO	-
Referenced Performed Procedure Step Sequence	0008,1111	SQ		ANAP	AUTO	-
>Referenced SOP Class UID	0008,1150	UI		ALWAYS	AUTO	-
>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	AUTO	-
Body Part Examined	0018,0015	CS		ANAP	COPY	-
Protocol Name	0018,1030	LO		ANAP	COPY	-
Patient Position	0018,5100	CS		ANAP	COPY	-
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	-
Series Number	0020,0011	IS		VNAP	AUTO	-
Laterality	0020,0060	CS		ANAP	COPY	-
Request Attributes Sequence	0040,0275	SQ		ANAP	COPY	-
>Scheduled Procedure Step Description	0040,0007	LO		ANAP	COPY	-
>Scheduled Procedure Step ID	0040,0009	SH		ANAP	COPY	-
>Requested Procedure ID	0040,1001	SH		ANAP	COPY	-
Performed Procedure Step Start Date	0040,0244	DA		ANAP	COPY	-
Performed Procedure Step Start Time	0040,0245	TM		ANAP	COPY	-
Performed Procedure Step ID	0040,0253	SH		ANAP	COPY	-
Performed Procedure Step Description	0040,0254	LO		ANAP	AUTO	-
Performed Protocol Code Sequence	0040,0260	SQ		ANAP	COPY	-
>Code Value	0008,0100	SH		ANAP	COPY	-
>Coding Scheme Designator	0008,0102	SH		ANAP	COPY	-
>Coding Scheme Version	0008,0103	SH		ANAP	COPY	-
>Code Meaning	0008,0104	LO		ANAP	AUTO	-

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Comments on the Performed Procedure Step	0040,0280	ST		ANAP	COPY	Maximum of 64 characters, Comments added on MR

Table 69: Presentation Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Modality	0008,0060	CS		ALWAYS	AUTO	-

Table 70: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO		VNAP	FIXED	Philips
Institution Name	0008,0080	LO		ANAP	CONFIG	
Station Name	0008,1010	SH		ANAP	CONFIG	
Institutional Department Name	0008,1040	LO		ANAP	CONFIG	
Manufacturer's Model Name	0008,1090	LO		ANAP	FIXED	IntelliSpace Portal
Device Serial Number	0018,1000	LO		ANAP	CONFIG	
Software Version(s)	0018,1020	LO		ANAP	FIXED	10.x

Table 71: Presentation State Identification Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Presentation Creation Date	0070,0082	DA		ALWAYS	AUTO	-
Presentation Creation Time	0070,0083	TM		ALWAYS	AUTO	-
Instance Number	0020,0013	IS		ALWAYS	AUTO	-
Content Label	0070,0080	CS		ALWAYS	AUTO	Applied values: AS LAST SEEN
Content Description	0070,0081	LO		VNAP	AUTO	-
Content Creator's Name	0070,0084	PN		VNAP	AUTO	Same as Manufacturer's Model name.

Table 72: Presentation State Relationship Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Referenced Series Sequence	0008,1115	SQ		ALWAYS	AUTO	-
>Referenced Image Sequence	0008,1140	SQ		ALWAYS	AUTO	-
>>Referenced SOP Class UID	0008,1150	UI		ALWAYS	AUTO	-
>>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	AUTO	-
>Series Instance UID	0020,000E	UI		ALWAYS	AUTO	-

Table 73: Display Shutter Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Shutter Presentation Value	0018,1622	US		ANAP	AUTO	Applied value: 0

Table 74: Overlay Plane Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Overlay Rows	6000,0010	US		ANAP	COPY	-
Overlay Columns	6000,0011	US		ANAP	COPY	-
Overlay Description	6000,0022	LO		ANAP	COPY	-
Overlay Type	6000,0040	CS		ANAP	COPY	-
Overlay Subtype	6000,0045	LO		ANAP	COPY	-
Overlay Origin	6000,0050	SS		ANAP	COPY	-
Overlay Bits Allocated	6000,0100	US		ANAP	COPY	-

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Overlay Bit Position	6000,0102	US		ANAP	COPY	-
ROI Area	6000,1301	IS		ANAP	COPY	-
ROI Mean	6000,1302	DS		ANAP	COPY	-
ROI Standard Deviation	6000,1303	DS		ANAP	COPY	-
Overlay Label	6000,1500	LO		ANAP	COPY	-
Overlay Data	6000,3000	O W/ OB		ANAP	COPY	-

Table 75: Overlay Activation Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Overlay Activation Layer	6000,1001	CS		ANAP	AUTO	applied value: 1

Table 76: Displayed Area Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Displayed Area Selection Sequence	0070,005A	SQ		ANAP	USER	-
>Referenced Image Sequence	0008,1140	SQ		ANAP	USER	-
>>Referenced SOP Class UID	0008,1150	UI		ANAP	USER	-
>>Referenced SOP Instance UID	0008,1155	UI		ANAP	USER	-
>Displayed Area Top Left Hand Corner	0070,0052	SL		ANAP	USER	-
>Displayed Area Bottom Right Hand Corner	0070,0053	SL		ANAP	USER	-
>Presentation Size Mode	0070,0100	CS	MAGNIFY, SCALE TO FIT	ANAP	USER	Applied values: MAGNIFY, SCALE TO FIT
>Presentation Pixel Spacing	0070,0101	DS		ANAP	USER	Applied values: (0.0, 0.0)
>Presentation Pixel Aspect Ratio	0070,0102	IS		ANAP	USER	-
>Presentation Pixel Magnification Ratio	0070,0103	FL		ANAP	USER	-
>Zoom Mode	2001,103F	CS		ANAP	USER	-

Table 77: Graphic Annotation Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Graphic Annotation Sequence	0070,0001	SQ		ANAP	USER	-
>Referenced Image Sequence	0008,1140	SQ		ANAP	USER	-
>>Referenced SOP Class UID	0008,1150	UI		ANAP	USER	-
>>Referenced SOP Instance UID	0008,1155	UI		ANAP	USER	-
>Graphic Layer	0070,0002	CS		ANAP	USER	-
>Text Object Sequence	0070,0008	SQ		ANAP	USER	-
>>Anchor Point Annotation Units	0070,0004	CS		ANAP	USER	-
>>Unformatted Text Value	0070,0006	ST		ANAP	USER	-
>>Anchor Point	0070,0014	FL		ANAP	USER	-
>>Anchor Point Visibility	0070,0015	CS		ANAP	USER	-
>Graphic Object Sequence	0070,0009	SQ		ANAP	USER	-
>>Graphic Annotation Units	0070,0005	CS		ANAP	USER	-

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>>Graphic Dimensions	0070,0020	US		ANAP	USER	-
>>Number of Graphic Points	0070,0021	US		ANAP	USER	-
>>Graphic Data	0070,0022	FL		ANAP	USER	-
>>Graphic Type	0070,0023	CS		ANAP	USER	-
>>Graphic Filled	0070,0024	CS		ANAP	USER	-

Table 78: Spatial Transformation Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Horizontal Flip	0070,0041	CS		ANAP	USER	-
Image Rotation	0070,0042	US		ANAP	USER	-

Table 79: Graphic Layer Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Graphic Layer Sequence	0070,0060	SQ		ANAP	USER	-
>Graphic Layer	0070,0002	CS		ANAP	USER	-
>Graphic Layer Order	0070,0062	IS		ANAP	USER	-

Table 80: Modality LUT Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Rescale Intercept	0028,1052	DS		ANAP	COPY	-
Rescale Slope	0028,1053	DS		ANAP	COPY	-
Rescale Type	0028,1054	LO		ANAP	COPY	Applied value(s): cm/sec, milliradials, milliseconds(ms), mm^2/sec, liter/min, normalized, seconds, US, mm, 10^-3 mm^2/s, 10^-3, 10^-3/min, Mm*s, mm^2,s, s^-1.

Table 81: Softcopy VOI LUT Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Softcopy VOI LUT Sequence	0028,3110	SQ		ANAP	COPY	-
>Referenced Image Sequence	0008,1140	SQ		ANAP	COPY	-
>>Referenced SOP Class UID	0008,1150	UI		ANAP	COPY	-
>>Referenced SOP Instance UID	0008,1155	UI		ANAP	COPY	-
>Window Center	0028,1050	DS		ANAP	COPY	-
>Window Width	0028,1051	DS		ANAP	COPY	-

Table 82: Softcopy Presentation LUT Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Presentation LUT Sequence	2050,0010	SQ		ANAP	COPY	Present if Presentation LUT Shape not present

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>LUT Descriptor	0028,3002	US /SS		ANAP	COPY	-
>LUT Data	0028,3006	US /OW		ANAP	COPY	-
Presentation LUT Shape	2050,0020	CS		ANAP	AUTO	-

Table 83: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Specific Character Set	0008,0005	CS		ANAP	AUTO	-
Instance Creation Date	0008,0012	DA		ANAP	COPY	-
Instance Creator UID	0008,0014	UI		ANAP	COPY	-
SOP Class UID	0008,0016	UI	1.2.840.10008.5.1.4.1.1.11.1	ALWAYS	AUTO	Applied Value(s): 1.2.840.10008.5.1.4.1.1.11.1
SOP Instance UID	0008,0018	UI		ALWAYS	AUTO	-
Instance Number	0020,0013	IS		ANAP	AUTO	-

Table 84: Extended DICOM and private attributes for Grayscale Softcopy Presentation State Storage SOP Class Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Medical Alerts	0010,2000	LO		ANAP	COPY	-
Allergies	0010,2110	LO		ANAP	COPY	-
Pregnancy Status	0010,21C0	US		ANAP	COPY	-
Requesting Physician	0032,1032	PN		ANAP	COPY	-
Requesting Service	0032,1033	LO		ANAP	COPY	-
Requested Procedure Description	0032,1060	LO		ANAP	AUTO	-
Study Comments (retired)	0032,4000	LT		ANAP	AUTO, USER	Comments added on MR
Special Needs	0038,0050	LO		ANAP	COPY	-
Patient State	0038,0500	LO		ANAP	COPY	-
Scheduled Performing Physician's Name	0040,0006	PN		ANAP	AUTO	-
Performed Procedure Step End Time	0040,0251	TM		ANAP	AUTO	-
Performed Procedure Step Status	0040,0252	CS		ANAP	AUTO	-
Requested Procedure ID	0040,1001	SH		ANAP	AUTO	-
Requested Procedure Comments	0040,1400	LT		ANAP	COPY	-
Imaging Service Request Comments	0040,2400	LT		ANAP	COPY	-
Private Creator Group 2001	2001,0010	LO		ANAP	AUTO	-
Private Creator Group 2001 (90)	2001,0090	LO		ANAP	AUTO	-
Presentation State Subtraction Active	2001,1026	CS		ANAP	AUTO	-
Series Transmitted	2001,1061	CS		ANAP	AUTO	-
Series Committed	2001,1062	CS		ANAP	AUTO	-
Examination Source	2001,1063	CS		ANAP	AUTO	-
LinearPresentationGLTrafoshapesub	2001,1067	CS		VNAP	AUTO	-
GL TrafoType	2001,1077	CS		ANAP	AUTO	-
Pixel Processing Kernel Size	2001,109F	US		ANAP	AUTO	-

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2.1.2.6. Key Object Selection Document Storage SOP Class

Table 85: IOD of Created Key Object Selection Document Storage SOP Class Instances

Information Entity	Module	Presence Of Module
Patient	Patient Module	ALWAYS
Study	General Study Module	ALWAYS
Study	Patient Study Module	CONDITIONAL – IF PRESENT IN THE SOURCE DATA
Series	Key Object Document Series Module	ALWAYS
Equipment	General Equipment Module	ALWAYS
Document	Key Object Document Module	ALWAYS
	SR Document Content Module	ALWAYS
Document	SOP Common Module	ALWAYS

Table 86: Patient Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Name	0010,0010	PN		VNAP	COPY	-
Patient ID	0010,0020	LO		VNAP	COPY	-
Patient's Birth Date	0010,0030	DA		VNAP	COPY	-
Patient's Sex	0010,0040	CS		VNAP	COPY	-
Ethnic Group	0010,2160	SH		ANAP	COPY	-
Patient Comments	0010,4000	LT		ANAP	COPY	-

Table 87: General Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Study Date	0008,0020	DA		VNAP	COPY	-
Study Time	0008,0030	TM		VNAP	COPY	-
Accession Number	0008,0050	SH		VNAP	COPY	-
Referring Physician's Name	0008,0090	PN		VNAP	COPY	-
Study Instance UID	0020,000D	UI		ALWAYS	COPY	
Study ID	0020,0010	SH		VNAP	COPY	
Study Description	0008,1030	LO		ANAP	COPY	

Table 88: Patient Study Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Patient's Age	0010,1010	AS		ANAP	COPY	-
Patient's Size	0010,1020	DS		ANAP	COPY	-
Patient's Weight	0010,1030	DS		ANAP	COPY	-
Occupation	0010,2180	SH		ANAP	COPY	-
Additional Patient History	0010,21B0	LT		ANAP	COPY	-

Table 89: Key Object Document Series Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Series Instance UID	0020,000E	UI		ALWAYS	AUTO	-

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Modality	0008,0060	CS		ALWAYS	COPY	-
Series Number	0020,0011	IS		VNAP	AUTO	-
Series Instance UID	0020,000E	UI		ALWAYS	COPY	-
Referenced Performed Procedure Step Sequence	0008,1111	SQ		ANAP	COPY	-

Table 90: General Equipment Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Manufacturer	0008,0070	LO		VNAP	FIXED	Philips
Institution Name	0008,0080	LO		ANAP	CONFIG	
Institution Address	0008,0081	ST		ANAP	CONFIG	-
Station Name	0008,1010	SH		ANAP	CONFIG	
Manufacturer's Model Name	0008,1090	LO		ANAP	FIXED	IntelliSpace Portal
Software Version(s)	0018,1020	LO		ANAP	FIXED	10.x

Table 91: Key Object Document Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Content Time	0008,0033	TM		ANAP	COPY	-
Content Date	0008,0023	DA		ANAP	COPY	-
Current Requested Procedure Evidence Sequence	0040,A375	SQ		ALWAYS	AUTO, COPY	-
>Study Instance UID	0020,000D	UI		ALWAYS	AUTO, COPY	-
>Referenced Series Sequence	0008,1115	SQ		ALWAYS	AUTO, COPY	-
>>Series Instance UID	0020,000E	UI		ALWAYS	AUTO, COPY	-
>>Referenced SOP Sequence	0008,1199	SQ		ALWAYS	AUTO, COPY	-
>>>Referenced SOP Class UID	0008,1150	UI		ALWAYS	AUTO, COPY	-
>>>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	AUTO, COPY	-

Table 92: SR Document Content Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Referenced SOP Sequence	0008,1199	SQ		ALWAYS	AUTO, COPY	
Observation DateTime	0040,A032	DT		ANAP	AUTO, COPY	
Value Type	0040,A040	CS		ALWAYS	AUTO, COPY	
Concept Name Code Sequence	0040,A043	SQ		ANAP	AUTO, COPY	
>Code Value	0008,0100	SH		ALWAYS	AUTO, COPY	
>Coding Scheme Designator	0008,0102	SH		ALWAYS	AUTO, COPY	
>Code Meaning	0008,0104	LO		ALWAYS	AUTO, COPY	
Continuity of Content	0040,A050	CS		ALWAYS	AUTO, COPY	
Temporal Range Type	0040,A130	CS		ALWAYS	AUTO, COPY	
Text Value	0040,A160	UT		ANAP	AUTO, COPY	
Concept Code Sequence	0040,A168	SQ		ALWAYS	AUTO, COPY	
Measured Value Sequence	0040,A300	SQ		VNAP	AUTO, COPY	
Content Template Sequence	0040,A504	SQ		ANAP	AUTO, COPY	
>Mapping Resource	0008,0105	CS		ALWAYS	AUTO, COPY	
>Template Identifier	0040,DB00	CS		ALWAYS	AUTO, COPY	
Content Sequence	0040,A730	SQ		ANAP	AUTO, COPY	

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>Referenced SOP Sequence	0008,1199	SQ		ALWAYS	AUTO, COPY	
>>Referenced SOP Class UID	0008,1150	UI		ALWAYS	AUTO, COPY	
>>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	AUTO, COPY	
>Relationship Type	0040,A010	CS		ALWAYS	AUTO, COPY	
>Value Type	0040,A040	CS		ALWAYS	AUTO, COPY	
>Concept Name Code Sequence	0040,A043	SQ		ANAP	AUTO, COPY	
>>Code Value	0008,0100	SH		ALWAYS	AUTO, COPY	
>>Coding Scheme Designator	0008,0102	SH		ALWAYS	AUTO, COPY	
>>Code Meaning	0008,0104	LO		ALWAYS	AUTO, COPY	
>Continuity of Content	0040,A050	CS		ALWAYS	AUTO, COPY	
>Temporal Range Type	0040,A130	CS		ALWAYS	AUTO, COPY	
>Concept Code Sequence	0040,A168	SQ		ALWAYS	AUTO, COPY	
>Measured Value Sequence	0040,A300	SQ		VNAP	AUTO, COPY	
>Graphic Data	0070,0022	FL		ALWAYS	AUTO, COPY	
>Graphic Type	0070,0023	CS		ALWAYS	AUTO, COPY	
>Referenced Frame of Reference UID	3006,0024	UI		ALWAYS	AUTO, COPY	
Referenced Frame of Reference UID	3006,0024	UI		ALWAYS	AUTO, COPY	

Table 93: SOP Common Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
SOP Instance UID	0008,0018	UI		ALWAYS		
Instance Number	0020,0013	IS		ANAP		
Specific Character Set	0008,0005	CS		ANAP	AUTO	All values specified in the Main DCS are supported
SOP Class UID	0008,0016	UI	1.2.840.10008.5.1.4.1.1.88.59	ALWAYS		1.2.840.10008.5.1.4.1.1.88.59
Contributing Equipment Sequence	0018,A001	SQ		ANAP	AUTO	-
>Manufacturer	0008,0070	LO		ALWAYS	COPY	
>Institution Address	0008,0081	ST		ANAP	COPY	
>Station Name	0008,1010	SH		ANAP	COPY	
>Institutional Department Name	0008,1040	LO		ANAP	COPY	
>Software Version(s)	0018,1020	LO		ANAP	COPY	
>Device Serial Number	0018,1000	LO		ANAP	CONFIG	
>Institution Name	0008,0080	LO		ANAP	COPY	
>Manufacturer's Model Name	0008,1090	LO		ANAP	COPY	
>Purpose of Reference Code Sequence	0040,A170	SQ		ALWAYS	FIXED	-
>>Code Value	0008,0100	SH	109102	ALWAYS	FIXED	109102
>>Coding Scheme Designator	0008,0102	SH	DCM	ALWAYS	FIXED	DCM
>>Code Meaning	0008,0104	LO	Processing Equipment	ALWAYS	FIXED	Processing Equipment

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